DATA EVALUATION REPORT

OMC PLANT 2
Waukegan, Illinois

Remedial Investigation/Feasibility Study

WA No. 237-RICO-0528/Contract No. 68-W6-0025

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Acronyms and Abbreviations

$\mu g/cm^2$	micrograms per square centimeter
$\mu g/kg$	micrograms per kilogram
$\mu g/L$	micrograms per liter
μV	microvolt
AATS	Ann Arbor Technical Services, Inc.
AOC	area of concern
AST	aboveground storage tank
bgs	below ground surface
Bombardier	Bombardier Recreational Products, Inc.
BTEX	benzene, toluene, ethylbenzene, and xylene
CFR	Code of Federal Regulations
cm/sec	centimeters per second
CPAH	carcinogenic polynuclear aromatic hydrocarbons
CRA	Conestoga-Rovers & Associates
CVOC	chlorinated volatile organic compound
DCA	dichloroethane
DCE	dichloroethene
DNAPL	dense nonaqueous phase liquid
DO	dissolved oxygen
ECD	electron capture device
ELCR	excess lifetime cancer risk
FID	flame ionization device
FSP	Field Sampling Plan
ft/ft	foot per foot
HI	Hazard Index
IDOC	Illinois Department of Conservation
IEPA	Illinois Environmental Protection Agency

MEK	methyl ethyl ketone
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MIP	membrane interface probe
MNA	monitored natural attenuation
mV	millivolt
NAPL	nonaqueous phase liquid
NPL	National Priorities List
O&M	operation and maintenance
OMC	Outboard Marine Corporation
ORP	oxidation reduction potential
OU	operable unit
PA	preliminary assessment
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PID	photoionization device
ppb	parts per billion
ppbv	parts per billion by volume
ppm	parts per million
PRG	preliminary remediation goal
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
Sigma	Sigma Environmental Services Inc.
SOD	soil oxidant demand
SPLP	Synthetic Precipitation Leaching Procedure
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TACO	Tiered Approach to Correction Action Objectives
TAL	Target Analyte List

TCA	trichloroethane
TCE	trichloroethene (or trichloroethylene)
TCL	Target Compound List
TOC	total organic carbon
TSCA	Toxic Substance Control Act
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
VSI	visual site inspection
WCP	Waukegan Coke Plant

SECTION 1

Introduction

This data evaluation memorandum presents the results of the remedial investigation (RI) activities completed at the Outboard Marine Corporation (OMC) Plant 2 (Operable Unit 4) in Waukegan, Illinois. The work was performed for the U.S. Environmental Protection Agency (USEPA) in accordance with the statement of work for Work Assignment No. 237-RICO-0528. The document is comprised of the following sections:

- Section 1 provides a general description of the site background and history, previous investigations and remediation, and an overview of the RI field activities and data collection objectives.
- Section 2 describes the physical setting of the site including the surrounding land use, geology, hydrogeology, and ecological characteristics.
- Section 3 consists of the chemical setting describing the nature and extent of contamination found in the building material, soil, groundwater, and air.
- Section 4 provides the references cited in this document.
- Appendix A contains the reports summarizing the investigations conducted for the City of Waukegan on the Lakefront Study Area, the eastern most portion of the OMC Plant 2 property.
- Appendix B contains the technical memorandums summarizing the individual investigation activities.
- Appendix C contains the data usability evaluation. The summary analytical data tables are provided electronically on a compact disk.
- Appendix D contains the report prepared by Conestoga-Rovers & Associates (CRA) summarizing the results of additional sampling conducted in the triax building.

1.1 Site Description

The OMC Plant 2 site is situated in Sections 15 and 22, Township 45 North, Range 12 East, in the city of Waukegan, Lake County, Illinois. The plant is located at 100 E. Seahorse Drive on the east side of Waukegan, immediately adjacent to Lake Michigan[1] (Figure 1-1). The site consists of about 65 acres, upon which are situated a 1,036,000-square foot former manufacturing plant building and several parking lot areas to the north and south of the building complex.

The site includes two polychlorinated biphenyl (PCB) containment cells in which PCB-contaminated sediment (dredged from Waukegan Harbor in the early 1990s) and PCB-

[1] Note: Additional addresses exist due to building extent.

impacted soil are managed. The cells (the "East Containment Cell" and the "West Containment Cell") are located north of the plant. OMC performed the harbor dredging work under a 1988 Consent Decree with USEPA and the Illinois Environmental Protection Agency (IEPA) that also required the long-term operations and maintenance (O&M) of the containment cells.

The site is situated in an area of mixed industrial, recreational, and municipal land uses (Figure 1-2). The OMC facility is bordered to the north by the North Ditch and North Shore Sanitary District and to the east by the public beach and dunes along Lake Michigan. Sea Horse Drive forms the southern site boundary. Further to the south are Larsen Marine Service, Waukegan Harbor, the Waukegan Coke Plant (WCP) Superfund site, the National Gypsum Company, Bombardier Recreational Products, Inc. (Bombardier), and the City of Waukegan Water Plant. Railroad tracks operated by the Elgin, Joliet, and Eastern Railway Company, and the A. L. Hanson Manufacturing Company (formerly OMC Plant 3) are located to the west of OMC Plant 2.

1.2 History and Operations

A detailed discussion of the plant history, operations, and previous environmental investigations is presented in the *Field Sampling Plan* (FSP; CH2M HILL 2004). A historical summary is provided herein.

1.2.1 Plant History

OMC designed, manufactured, and sold outboard marine engines, parts, and accessories to a worldwide market for many years. Plant 2 was a main manufacturing facility for OMC, and the major production lines used PCB-containing hydraulic and lubricating/cutting oils, chlorinated solvent-containing degreasing equipment, and smaller amounts of hydrofluoric acid, mercury, chromic acid, and other chemical compounds.

Plant 2 was constructed in several phases between 1949 and 1975. The western part of the Plant 2 property was purchased from Elgin, Joliet, and Eastern Railway Company in 1948. The easternmost 47 acres of the property was purchased from Abbot Laboratories in 1956. The 18,000-square foot corporate headquarters building, which was constructed in 1958, housed OMC's corporate offices (TechLaw 2001).

OMC filed for bankruptcy protection under Chapter 13 on December 22, 2000, and ceased operations at Plant 2. After failing to reorganize, OMC began liquidation in August 2001 by shedding all of its assets, including its Waukegan-area properties. OMC Plant 1 was sold to Bombardier. OMC Plant 2 had no buyers, and in November 2001 the bankruptcy trustee filed a motion to abandon the facility. USEPA conducted a site discovery inspection in spring 2002 to document the presence of numerous chemical compounds in OMC Plant 2 and to support the allegation of imminent and substantial endangerment. Based on the findings, USEPA and the State of Illinois filed a joint objection to the abandonment and alleged that the site posed an imminent and substantial endangerment to public health and welfare and to the environment.

In August 2002, the OMC bankruptcy trustee, USEPA, and IEPA agreed to a settlement action whereupon the trustees would perform a limited number of cleanup actions inside the plant. The waste removal activities for the OMC Trust were conducted beginning in August 2002 and were completed in November 2002. Once the trustees completed the cleanup actions per the settlement agreement, they legally abandoned OMC Plant 2. The waste removal activities for the OMC Trust were completed in November 2002 and the Trust abandoned OMC Plant 2 property on December 10, 2002.

Bombardier, which owns the former OMC Plant 1, also purchased some assets within Plant 2 including machines and associated hydraulic fluids, cleaners, and paints. Bombardier removed assets of value, and disposed of waste materials associated with those assets during the OMC Trust's Plant 2 removal activities (Tetra Tech 2002).

USEPA assumed control of building security and utilities on December 10, 2002, and conducted additional interior cleanup work in spring 2003 to prevent the release of PCBs and other compounds into the environment. USEPA maintained electrical power to support O&M of the PCB containment cells until December 10, 2003, at which time the State took over O&M of the cells. USEPA and IEPA are also planning to expand the OMC National Priorities List (NPL) site description that includes Waukegan Harbor (Operable Units [OUs] 1 and 3) and the WCP site (OU2) to include the OMC Plant 2 as OU4.

The City of Waukegan took title to the OMC Plant 2 property in July 2005 and is responsible for maintaining the building, property, and O&M of the containment cells.

1.2.2 Description of Manufacturing Operations

Manufacturing operations at Plant 2 included aluminum smelting and holding; aluminum die casting; aluminum machining, polishing, and finishing; spray painting; assembly; parts washing; chromate conversion coating; and wastewater pretreatment. Activities previously conducted in Plant 2 included vapor degreasing, solvent distillation, coolant reclamation, aluminum scrap processing, and electroplating. A basement beneath the wastewater treatment room contains troughs used for chrome plating operations (Tetra Tech 2002).

Numerous floor and strip drains are present in Plant 2, particularly in the die cast areas. Drain systems are present around the die casting machines. When operational, the drains collected and conveyed spent die and machining lubricants to the subslab piping network and eventually to the machining lubricant recovery systems and waste storage areas (TechLaw 2001). Two sets of pipe chases (tunnels) are present beneath Plant 2: one at the eastern end where die casting was most recently conducted, and one at the western end. The eastern pipe chases run north-south and allow access to the subslab piping systems beneath the die casting machines that in turn conveyed spent die lubricants, tramp oils, noncontact cooling water, compressed air, and natural gas (TechLaw 2001). The eastern tunnels were observed to be of sound integrity but did contain surface water runoff from access ramps outside the building. Because the power to the building has been turned off, the sumps are no longer able to purge water from the eastern tunnels.

The piping networks within the western tunnel system were used until about 1975, when the die casting operations were moved to the eastern end of Plant 2. The die casting machines held PCB fluids in the hydraulic sump associated with each machine. Minor amounts of oils containing PCBs were released during operation of the machines. Some of the fluids entered the subslab piping within the concrete tunnels in the western end of the building, contributing to the PCB-contaminated sediment in Waukegan Harbor. The tunnels and associated piping beneath the western end of Plant 2 were never formally decommissioned or decontaminated. However, the north and south sections of storm sewers that extended into the parking lots beyond the limits of the Plant 2 building were decommissioned in 1977 by removing a section of the piping and the surrounding soils (URS 2000). Several other drains that had discharged to the North Shore Sanitary District have also been plugged.

Solvent Degreasers

As mentioned previously, the plant activities also included vapor degreasing and solvent distillation. A review of plant records indicate that, from approximately 1969 to 1988, degreaser units that typically consisted of recessed stainless steel degreasing tanks, and some dedicated "stills" adjacent to each degreaser, were used to support plating activities. Solvent was generally moved within this area via aboveground and overhead lines. Recovered solvent was reintroduced into the degreaser solvent and still bottoms were periodically removed for offsite disposal at a collective annual rate of up to 50,000 gallons (TechLaw 2001). Records indicate that up to 17 degreasers were used in 1979.

In addition to the degreaser units, the facility had a distiller for the purpose of reclaiming solvents and a 5,500-gallon trichloroethylene (TCE) tank vault that was partially below grade. TCE was distributed to the various degreasers by the use of pipes that were run above ground to each unit. Prior to an initiative to reduce chlorinated solvent use in 1979, it is estimated that OMC used 130,000 gallons of TCE. The use of chlorinated solvents at the Plant 2 facility stopped in the mid-1980s (Willis 1998). The locations of the suspected chlorinated solvent handling areas, based on plant records, are presented in Figure 1-4.

Underground and Aboveground Storage Tanks

Historically, OMC Plant 2 used roughly 20 underground storage tanks (USTs) during operations. The USTs were primarily located outside the facility along the building exterior and contained oils, lubricants, solvents, #2 fuel oil, and other materials (Figure 1-4). During the 1970s, OMC installed six 15,000-gallon steel USTs along the east side of Plant 2. Five of the tanks for die lube and hydraulic oils were located in an area immediately east of the new die cast facility. One additional tank for hydraulic oil and die lube mix was located near the southern boundary of the parking area. Available information indicates that the identified USTs have been abandoned in place or removed (URS/Dames & Moore 2000; Spectrum Engineering Incorporated 1998). The locations of the USTs, based on plant records, are presented in Figure 1-4.

Aboveground storage tank (AST) investigations have revealed that Plant 2 had numerous ASTs at various locations over the years. A total of 17 ASTs used for storing a variety of PCB materials at varying concentrations were located in the parking lot area north of the plant (Figure 1-4). In addition to product, these tanks were also used for storing waste PCB materials for unspecified periods. All PCB ASTs were reportedly removed in 1984 and only the secondary containment diking remains (TechLaw 2001). The other ASTs were found primarily within the OMC Plant 2 building and contained nitrogen, coolants, soap, oils, lubricants, gasoline, and other materials. These ASTs were routinely moved as plant operations and departments changed location.

1.2.3 Operational Permits

The OMC facility operated under a Part B Resource Conservation and Recovery Act (RCRA) permit. The permit identified the Hazardous Waste and Product Storage Building located at the southwest corner of the plant (Figure 1-5). Hazardous waste generated by OMC included a gas/oil/water mixture from skimming operations (D001), wastewater treatment sludge (F019/D007), lyfanite filters (D005/D006/D007), aerosol cans (D001), paint wastes (F005), paint sludge (D001/F003/F005), paint filters (F005), paint thinner methyl ethyl ketone (MEK) (F005), and a number of other specialized waste streams (TechLaw 2001).

Waste pretreatment was also conducted in Plant 2. Pretreatment consisted of hexavalent chromium reduction by sodium bisulfite addition, neutralization, metals precipitation, clarification, pH adjustment, and sludge removal. Wastewater generated from OMC Plant 2 was discharged into two sanitary sewer lines (S-2 and S-2A) as a tributary to the North Shore Sanitary District (TechLaw 2001).

Stormwater generated by OMC was discharged under a National Pollutant Discharge Elimination System permit. Stormwater discharges include rainwater from the roofs and parking lots, and various sources of noncontact cooling water. Most of OMC's stormwater outfalls discharged directly into Waukegan Harbor or Lake Michigan (Figure 1-5). Historical facility drawings show that several floor drains contained in Plant 2 were also routed through the outfalls (TechLaw 2001).

1.3 Previous Investigations and Remediation

The OMC Complex has been subject to investigation and remediation (primarily for PCBs) since the late 1970s. A large body of geologic, hydrogeologic, hydrologic, and chemical distribution information has been developed during these activities. The information from these previous environmental investigations and remedial activities has been summarized in the FSP (CH2M HILL 2004) and is briefly summarized below.

1.3.1 Waukegan Harbor Remediation

OMC used hydraulic fluid containing PCBs as a lubricant in its aluminum die casting machines from 1961 to 1972. Reports indicate that OMC purchased about 8 million gallons of hydraulic fluid that contained PCBs. During the manufacturing process, some of the hydraulic fluid spilled into floor drains that discharged to an oil interceptor system, which then discharged to the North Ditch, a tributary to Lake Michigan. Some of the hydraulic fluids containing PCBs escaped from part of the oil interceptor, diversion, and pump system and were released directly to Waukegan Harbor in the western end of former Slip 3. The discharge on the northern part of the property was to the Crescent Ditch (Figures 1-2 and 1-5). As a result, large quantities of PCBs were released into Slip 3 and on the OMC property into the North Ditch, Oval Lagoon, Crescent Ditch, and the parking lot. By the time the discharge pipe to the harbor was sealed in 1976, about 300,000 pounds of PCBs had been released into the Waukegan Harbor and another 700,000 pounds to the OMC property near the North Ditch. It has been estimated that hundreds of thousands of pounds of PCBs were discharged directly into Lake Michigan (USEPA 2002).

Waukegan Harbor and the North Ditch area (OU1 and OU3) were placed on the NPL in September 1983. In 1984, USEPA selected a remedy consisting of a mixture of onsite containment and offsite disposal, targeting three areas where large quantities of PCBs were discharged for remediation: the North Harbor and former Slip 3, the OMC parking lot, and the North Ditch/Crescent Ditch/Oval Lagoon area (see Figure 1-2). The PCB concentrations in Crescent Ditch, Oval Lagoon, and North Ditch ranged from 50 to more than 10,000 parts per million (ppm). Another area of concern was the 9-acre Parking Lot area north of Plant 2 with PCB concentrations between 50 and 5,000 ppm.

OMC financed a trust to implement the cleanup and to ensure performance of the requirements of the Consent Decree (dated April 1989). The final remedy included (USEPA 2002):

- Excavation and construction of a new boat slip (Slip 4) on the east side of the North Harbor on the WCP property for the relocation of Larsen Marine Service from Slip 3.
- Construction of cutoff walls to isolate PCB-contaminated materials and to make Slip 3 a permanent containment cell. Designated dredged harbor sediments were placed in Slip 3 for containment.
- Construction of two other containment cells (termed the East and West Containment Cells) on the OMC Plant 2 property (see Figure 1-2). The East Containment Cell encompasses the Plant 2 Parking Lot area and the land east of the lot. The West Containment Cell encompasses the Crescent Ditch and Oval Lagoon. Before construction, all areas containing PCB contamination at concentrations greater than 10,000 ppm were excavated and removed for treatment. Soil excavated from the Parking Lot area did not require treatment before placement into the East Containment Cell because it did not exceed the treatment criterion. About 5,000 cubic yards of sediment and soil were removed from the North Ditch, 2,900 cubic yards from Oval Lagoon, and 3,800 cubic yards from Crescent Ditch.
- Placement of residual soils from the treatment of materials in hot spot areas by a low-temperature extraction procedure into the West Containment Cell, which was then closed and capped.
- Restoration of the North Ditch by excavation of designated sediments, placement of these sediments in the West Containment Cell, and backfilling of the North Ditch with clean sand.
- Installation and operation of an extraction well system at each containment cell to prevent the migration of PCBs from the cells by maintaining an inward hydraulic gradient. Treatment of extracted water using dedicated water treatment systems with discharge to the North Ditch or Waukegan Harbor.

Final construction activities for the Waukegan Harbor (OU1 and OU3) remedial action were completed in December 1994. O&M of the containment cells is ongoing.

1.3.2 UST and AST Investigations and Remediation

In November 1991, a routine tightness test detected a leak in UST Tank 2.6. This information was reported to IEPA, and the incident was assigned number 913462.

In 1993, OMC removed six USTs (including Tank 2.6) and retained Sigma Environmental Services Inc. (Sigma) to perform a closure assessment. According to Sigma, five of the tanks were in good condition upon removal. Two small holes were observed in the bottom of Tank 2.6. On the basis of soil staining, strong petroleum odors, and a sheen on groundwater entering the excavation, Sigma concluded that a release had occurred and notified IEPA (Sigma 1993).

In November 1994, Ann Arbor Technical Services Inc. (AATS) conducted an additional investigation including completion of 31 soil borings to characterize residual soil impacts in the areas surrounding the USTs. Soil samples from the 2- to 4-foot depth interval (at or below the water table) consistently contained polynuclear aromatic hydrocarbons (PAHs) in the 1 to 15 ppm range (AATS 1997).

1.3.3 Chlorinated Solvent Plume Investigation

Historic solvent use at OMC Plant 2 resulted in chlorinated hydrocarbon impacts to the groundwater. A subsurface investigation was conducted in the spring of 1997 to identify the source and extent of chlorinated compounds in the groundwater in the vicinity of Plant 2. Soil and groundwater samples were collected in July 1997, primarily beneath the central part of Plant 2 and extending to the northern and western property boundaries. An offsite investigation was conducted in November 1997 on the Larsen Marine Services property south of the OMC corporate building. The investigation focused on the uppermost 30 feet of soil, terminating at the clay till boundary that apparently acts as a lower confining layer. The findings of the field investigation (Willis 1998) included the following:

- TCE and its daughter products cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride were identified in groundwater from Plant 2 at concentrations exceeding Illinois Tiered Approach to Corrective Action Objectives Cleanup Objectives for Class I aquifers. Trace amounts of 1,1,1-trichloroethane (1,1,1-TCA) and 1,1-dichloroethane (1,1-DCA) were also detected.
- The distribution of chlorinated volatile organic compounds (CVOCs) in the shallow zone of groundwater indicates one or more sources are located in the central and northern parts of Plant 2, corresponding to the location of several former vapor degreasers that had operated at the facility. Another potential source area is a cooling pond formerly located in the northwestern corner of the Metal Working Area of Plant 2 (see Figure 1-3). A separate source area, possibly related to underground utilities near or in the former Crescent Ditch, contained TCE in the shallow zone west of the West Containment Cell.
- There is an occurrence of TCE within the deep zone that appears to be unrelated to the suspected source in the center of Plant 2. The area is located in the southwestern corner of the East Containment Cell. The reason for the presence of TCE there is unknown.
- CVOCs are distributed throughout the groundwater column.
- CVOCs appear to be migrating predominantly to the south and southeast towards Waukegan Harbor. CVOC contamination on the eastern part of the site (immediately south of the East Containment Cell) is likely migrating easterly toward Lake Michigan.

1.3.4 USEPA Preliminary Assessment and Visual Site Inspection

TechLaw, Inc. conducted a preliminary assessment (PA) and visual site inspection (VSI) for USEPA at OMC Plant 2 in July 2001. The PA/VSI was performed to identify environmental releases or potential releases from solid waste management units (SWMUs) and areas of concern (AOCs) that may require corrective action by the facility owner.

The potential environmental problems at the OMC Plant 2 identified in the VSI included:

- PCB-contaminated floors, walls, and ceilings in the old "die cast" building area
- Chlorinated solvents in substantial quantities beneath the building, especially where the self-proclaimed "world's largest vapor degreaser" was previously located
- A chlorinated solvent groundwater plume potentially migrating into Lake Michigan
- PCB-laden soils beneath the northern parking lot areas (the OU1 and OU3 PCB cleanup level was set at 50 ppm)
- Pipe chases leading to the harbor and elsewhere containing oily residue laden with PCBs

USEPA recommended that OMC conduct a RCRA Facility Investigation to determine the extent of these and other contaminated areas and to propose a clean-up remedy for the site (Lambesis 2001).

1.3.5 USEPA Discovery Site Visit and OMC's Removal Action

USEPA conducted a site discovery inspection in spring 2002 to document the presence of numerous chemical compounds in Plant 2 to support the allegation of imminent and substantial endangerment. As part of the effort, a site investigation was performed and onsite materials were inventoried to evaluate potential site-related threats to human health and the environment (Tetra Tech 2002). The waste removal activities for the OMC Trust were conducted beginning in August 2002 and were completed in November 2002. The completed tasks included removal and disposal of all drums and containers, draining of all tanks, draining and flushing of all transformers, draining and disposal of all hydraulic fluid remaining in machines, draining and disposal of all fluids in the chip wringer and hopper machine, and removal and disposal of all batteries and capacitors. The analytical results for the samples collected indicated that several areas required attention in terms of waste or product removal and decontamination.

1.3.6 USEPA Removal Action

USEPA assumed control of building security and utilities on December 10, 2002, and commenced a removal action between May 12 and July 11, 2003. USEPA's activities consisted of waste removal, floor decontamination, site security, O&M of the three sediment containment cells, tunnel inspections, soil and groundwater sampling, asbestos removal, and draining and disposal of PCB-contaminated transformer fluid. Wastes removed included hydraulic oil, machining oil, oily metal chips, sludge, compressed gasses, and waste decontamination water. The chip wringer pit, metal working floor, former parts storage area floor, and floor in the old die cast area were cleaned. Floor decontamination efforts reduced PCB concentrations on the floors, but remaining concentrations exceed standards in five of nine metal working area wipe samples collected following floor cleaning (Tetra Tech 2003).

1.4 Overview of the Remedial Investigation

OMC and USEPA have conducted multiple investigations at the site and in its vicinity. The existing data from these investigations were evaluated and used to develop a conceptual model of the existing site conditions. The conceptual models of the physical and chemical conditions at the site, based on the previous investigations, are presented in the FSP (CH2M HILL 2004). The FSP also discusses specific sampling objectives and approaches developed for each medium (building materials, soil, groundwater, and air) based on the conceptual model and future land use goals. Based on a review of existing data, the potential environmental issues and data needs for the OMC Plant 2 site RI include:

- The presence of PCB-contaminated metal structures and piping (i.e., nonporous surfaces), concrete block walls, painted metal walls, painted piping, painted girders (i.e., porous surfaces other than floors), and concrete floors in the old die cast, parts storage, and metal working areas. Additional sampling was conducted (the building materials investigation) to evaluate material handling and disposal options for PCB-contaminated building materials. The sampling was limited to that sufficient to determine the general proportion of material (e.g., metal, painted walls and piping, concrete, etc.) that will require decontamination, treatment, or to determine the type of landfill for offsite disposal. A risk evaluation based on the process described in the PCB Spill Cleanup Policy, 40 Code of Federal Regulations (CFR) 761.61(c) will be conducted to further address the PCB-contaminated materials.
- The condition of sanitary sewers and storm sewers that were reportedly plugged and decommissioned and/or not decontaminated and may be providing releases to Waukegan Harbor from the site. Sewer line dye tests were used to determine effectiveness of previous plugging and capping actions.
- The presence of PCB-contaminated sediment detected in the North Ditch requiring remediation—the volume of sediments requiring remediation was estimated during the soil and sediment investigation using sediment probes.
- The presence of contaminated soil (PCBs and carcinogenic polynuclear aromatic hydrocarbons [CPAHs]) previously detected in the vicinity of the former PCB AST area, northern parking lot areas, and the areas east of the former die cast UST and AST area. The soil and sediment investigation also included surface and subsurface soil sampling along the sand dunes east of OMC Plant 2 and beneath the building to define the nature and extent of contamination. The areas investigated and objectives of the investigation are presented in the *Soil and Sediment Investigation* technical memorandum presented in Appendix B.
- The presence of chlorinated solvents in soil and groundwater beneath the building where former solvent degreasers were located. Definition of hot spot areas beneath the building in soil and groundwater was completed during the RI soil and groundwater investigations. Soil samples were collected using soil probes; groundwater grab samples were collected from temporary piezometers and groundwater sampling was performed using low flow methods from permanent groundwater monitoring wells. The areas investigated and objectives of the investigation are presented in the *Groundwater Investigation Technical Memorandum* presented in Appendix B.

- A chlorinated solvent groundwater plume that is potentially migrating into Lake Michigan or Waukegan Harbor. The nature and extent of the plume and related exposure routes were defined during groundwater, soil, and soil gas investigations during the RI.

Additional elements used in developing the sampling approach included:

- The pre-RI data indicate that elevated concentrations of PCBs and CVOCs in the soil are likely to pose risks to human health that exceed both an excess lifetime cancer risk (ELCR) of 1×10^{-4} and a Hazard Index (HI) of 1. As a result, it may be possible to streamline the risk assessment by incorporating comparisons to State of Illinois' Tiered Approach to Correction Action Objectives (TACO) remediation objectives or USEPA's preliminary remedial goals (PRGs) to meet the requirements for a baseline risk assessment. This risk assessment approach will be reevaluated during preparation of the RI.

- Soil gas (volatilization from soil and groundwater) above the chlorinated solvent plume will pose an unacceptable risk to residents or workers in any future buildings constructed within the footprint of the existing building (assuming no further action for volatile organic compound [VOC] remediation in soil and/or groundwater). Therefore, the construction of any buildings on the site would need to include controls to mitigate potential vapor intrusion. Vapor sampling from beneath the building was not proposed because results would not be representative of future conditions when the building no longer exists and potential soil or groundwater remedial activities have been implemented. However, screening values for the potential vapor intrusion pathway will be developed to aid in identifying areas where remediation might be needed to address this pathway.

Remedial investigation activities at Plant 2 began in January 2005 and were completed in June 2005. The field investigation was conducted to evaluate the impacts of OMC's historical operations and to verify and refine the extent and levels of residual contamination in the building materials in Plant 2, surface soil, subsurface soil, and groundwater. A summary of the RI field activities are presented in Tables 1-1 through 1-4. Technical memorandums summarizing the specific activities associated with each of the investigations are provided in Appendix B.

TABLE 1-1
Summary of Sample Locations and Rationale for Building Investigation
OMC Plant 2

Overall Sampling Objective	Media	General Location Description	Number of Sampling Locations	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
Collect PCB data to evaluate material handling and disposal options of plant building materials.	Non-porous surfaces: unpainted metal structures and piping	Random locations within the Old Die Cast Area, Parts Storage Area, and the Metal Working Area	64 locations	64 wipe samples	TCL PCBs	To determine whether these nonporous media are contaminated and will need to be decontaminated, and, if contaminated, the type of thermal treatment or disposal required.
	Porous surfaces other than floors	Random locations within the Old Die Cast Area, Parts Storage Area, and the Metal Working Area	62 locations	62 wipe samples	TCL PCBs	To determine the relative proportion of porous surfaces that are contaminated (i.e., PCB concentration > 10 μg/100 cm^2) and to determine if further bulk sampling is needed to determine disposal requirements.
		Visually contaminated areas or where results from wipe samples > 100 μg/100 cm^2	10 locations	10 paint and concrete chip samples	TCL PCBs	To determine if contaminated materials contain PCB concentrations > the TSCA disposal criteria of 50 mg/kg.
	Porous floor surfaces	Random locations within the Old Die Cast Area, Parts Storage Area, and the Metal Working Area	5 locations in the old die cast area	6	TCL PCBs	To determine if contaminated materials contain PCB concentrations > the TSCA disposal criteria of 50 mg/kg.
			5 locations in the parts storage area	6	TCL PCBs	*To determine if contaminated materials* contain PCB concentrations > the TSCA disposal criteria of 50 mg/kg.
			5 locations in the metal working area	10	TCL PCBs	*To determine if contaminated materials* contain PCB concentrations > the TSCA disposal criteria of 50 mg/kg.

TABLE 1-1
Summary of Sample Locations and Rationale for Building Investigation
OMC Plant 2

Overall Sampling Objective	Media	General Location Description	Number of Sampling Locations	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
		Northwest corner of Chemical Storage Building	1	1	TCL PCBs	Previous samples from this area contained PCB concentrations > 10 μg/100 cm^2 in wipe samples. Core samples will be analyzed to determine if contaminated materials contain PCB concentrations > the TSCA disposal criteria of 50 mg/kg.
		Northwest corner of New Die Cast Area	1	1	TCL PCBs	Previous samples from this area contained PCB concentrations > 10 μg/100 cm^2 in wipe samples. Core samples will be analyzed to determine if contaminated materials contain PCB concentrations > the TSCA disposal criteria of 50 mg/kg.
		Random locations within the Old Die Cast Area, Parts Storage Area, and the Metal Working Area	1 from each area[c]	3	TAL metals & cyanide (total) SPLP PCBs SPLP metals	Evaluate potential impacts of leaching from contaminated concrete to allow evaluation of onsite disposal alternatives.
		Plating Room	1	1	TAL metals & cyanide (total) SPLP PCBs SPLP metals	Evaluate potential impacts of leaching from contaminated concrete to allow evaluation of onsite disposal alternatives.

TABLE 1-2
Summary of Sample Locations and Rationale for Soil Investigation
OMC Plant 2

Overall Sampling Objectives	Media	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (ft)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
Confirm the nature and extent of contamination identified by previous investigations. Fill data gaps. Collect geotechnical characteristics of the soils.	Unsaturated soils	Former Die Cast UST/AST Area and along access road adjacent to dune area east of the site	Direct push methods	10	0–6 in. 2-ft interval above water table	18	TCL VOCs TCL SVOCs[b] TCL PCBs	Define eastern contaminant boundary.
	Unsaturated soils	PCB Area north of the Plant	Direct push methods	35	0–6 in. 2-ft interval above water table	73	TCL VOCs TCL SVOCs[b] TCL PCBs	Define limits of soil contamination in vicinity of PCB AST area and northern parking lot area.
	Unsaturated soils	Uncovered grassy area surrounding the Corporate Building	Direct push methods	6	0–6 in. 2-ft interval above water table	12	TCL VOCs TCL SVOCs[b] TCL PCBs	Determine if soil contamination exists in the nonpaved areas south of the plant.

TABLE 1-2
Summary of Sample Locations and Rationale for Soil Investigation
OMC Plant 2

Overall Sampling Objectives	Media	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (ft)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
	Unsaturated and saturated soils	Selected locations in area of elevated groundwater contamination	Direct push methods	8	0–4 ft Top of aquifer Bottom of aquifer	24	TCL VOCs TCL PCBs TCL SVOCs[b] TOC Porosity Bulk Density Grain Size Moisture Content Soil Oxidant Demand	Determine contaminant concentrations in soil beneath the building to allow comparison against groundwater concentrations and to allow evaluation of remedial technologies.
	Unsaturated soils	Random samples beneath building	Direct push methods	9	0–4 ft	9	TCL VOCs **TAL Metals & Cyanide[c]**	Determine contaminant concentrations in soil beneath the building and to correlate MIPs response to concentrations in soil.
	Unsaturated and saturated soils	Samples from borings for new monitoring wells installed outside of the building	Hollow-stem augers/ split-spoon samplers	14	Unsaturated zone sample Top of aquifer Bottom of aquifer	30	Total Organic Carbon Grain Size Porosity Bulk Density	Samples will be collected to evaluate transport properties of the unsaturated zone and groundwater flow and the transport characteristics of the aquifer.

Notes:
[a] Number of samples does not include quality control samples.
[b] PAHs and CPAHs will be analyzed as part of the SVOC list.
[c] Only soil samples taken near the plating/foundry areas were analyzed for metals and cyanide.

TABLE 1-3
Summary of Sample Locations and Rationale for Groundwater Investigation
OMC Plant 2

Overall Sampling Objectives	Monitoring Point	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
Determine site-specific hydraulic gradients and groundwater velocities. Confirm the nature and extent of contamination identified by previous investigations. Fill data gaps.	Temporary borehole	Randomly selected borings adjacent to MIPs locations	Discrete groundwater grab sample	9	Shallow Zone (0–10 ft) Intermediate Zone (10–20 ft) Deep Zone (20–30 ft)	27	TCL VOCs Cr^{6+}, TAL metals (dissolved) & cyanide (total)[b] Note: If NAPL is encountered, samples will also be analyzed for TCL PCBs	Correlate MIPs response and CVOC groundwater concentrations.
	Existing monitoring wells[c]	Shallow (0–15 ft): W-13, MW-3S, MW-11S, MW-14S, MW-15S, MW-100, MW-101, MW-102 Deep (15–30 ft): W-3, W-4, W-5, W-6, W-7, W-9, W-10, W-11, W-12, MW-3D, MW-11D, MW.14D, MW-15D	Low flow sampling	21	8 shallow, 13 deep	21	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Verify water quality conditions identified by previous investigations.

TABLE 1-3
Summary of Sample Locations and Rationale for Groundwater Investigation
OMC Plant 2

Overall Sampling Objectives	Monitoring Point	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
	New monitoring wells	Southwestern corner of site near Chemical Storage Building	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Determine groundwater flow onto site from former OMC Plant 3.
		Outside of chip dock area	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[d] Field analyses[e]	Monitor contamination observed in HY-35 that previously contained high VOC concentrations in the deep groundwater (36,569.4 μg/L).
		Outside of chip wringer room	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Monitor contamination observed in HY-2 and GP-8 that previously contained high VOC concentrations in the groundwater.

TABLE 1-3
Summary of Sample Locations and Rationale for Groundwater Investigation
OMC Plant 2

Overall Sampling Objectives	Monitoring Point	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
		Parking lot between Old Die Cast Area and New Die Cast Area, south of former PCB ASTs	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Monitor contamination observed in HY-22 and HY-34 that previously contained high VOC concentrations in the groundwater. This location was also identified to potentially be a low spot in the till.
		Replace MW-4A/B/C well nest	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Replace damaged 3 well nest with new 2 well nest.
		Replace MW-2A/B/C well nest	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Replace damaged 3 well nest with new 2 well nest.

TABLE 1-3
Summary of Sample Locations and Rationale for Groundwater Investigation
OMC Plant 2

Overall Sampling Objectives	Monitoring Point	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
		Near Corporate Offices	Low flow sampling	3	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	6	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Monitor contamination observed in HY-18, HY-9, HY-17 and TP-13 that previously contained high VOC concentrations in the groundwater. This source of the contamination in this area is unknown.
		Larson Marine Property—near Slip 4	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Groundwater contamination has not been observed in previous groundwater grab samples collected in this area. Based on groundwater flow data, this location may serve to monitor potential groundwater discharges to Waukegan Harbor.
		East property line	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Monitor groundwater contamination migration into the beach area.

TABLE 1-3
Summary of Sample Locations and Rationale for Groundwater Investigation
OMC Plant 2

Overall Sampling Objectives	Monitoring Point	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations
		South of triax building just north of Seahorse Drive.	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Monitor groundwater contamination migration south of the building.
		West of building along west property boundary	Low flow sampling	1	2 well nests: shallow water table well (0–10 ft) deep well (20–30 ft)	2	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	Provide an upgradient location to monitor potential contamination migration onto the site from possible upgradient sources.
		Within the building	Low flow sampling	5	2 well nests. shallow water table well (0–10 ft) deep well (20–30 ft)	10	TCL VOCs TCL SVOCs[d] TCL PCBs TAL metals (total and dissolved) & cyanide (total) Natural attenuation parameters[e] Field analyses[f]	These locations will be selected based on the results of the MIPs investigation. These locations will be selected to monitor the contaminated groundwater plume under the building and will include high concentration areas as well as the plume boundaries.

TABLE 1-3
Summary of Sample Locations and Rationale for Groundwater Investigation
OMC Plant 2

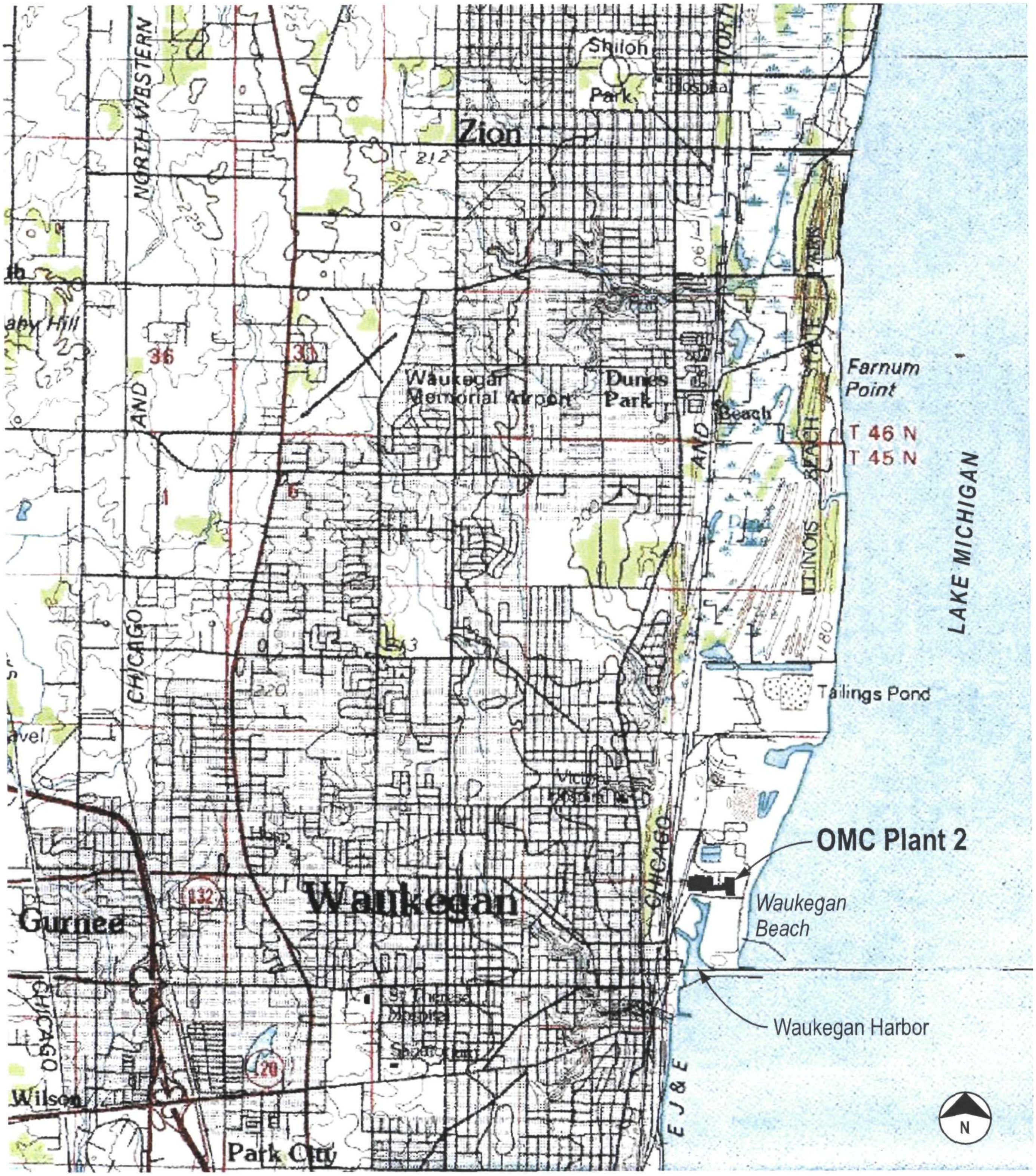
Overall Sampling Objectives	Monitoring Point	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rationale behind Selection of Sampling Locations

Notes:
[a] Number of samples does not include quality control samples.
[b] Groundwater grab samples in the vicinity of the plating/foundry areas will be analyzed for dissolved metals, cyanide, and hexavalent chromium.
[c] Number of existing wells and condition will be determined during site reconnaissance.
[d] PAHs and CPAHs will be analyzed as part of the TCL SVOC list.
[e] Natural Attenuation Parameters include: methane, ethane, ethene, dissolved iron, total alkalinity, chloride, nitrate, nitrite. sulfate, sulfide, and total organic carbon.
[f] Field Analysis includes: water levels, temperature, pH, specific conductance. conductivity, dissolved oxygen. oxidation-reduction potential, and turbidity.

TABLE 1-4
Summary of Sample Locations and Rationale for Soil Gas and Indoor Air Investigation
OMC Plant 2

Overall Sampling Objective	Media	General Location Description	Collection Method	Number of Sampling Locations	Sample Depth (feet)	Number of Samples[a]	Analysis	Rational of Selection of Sampling Locations
Determine the nature of potential soil gas levels above the groundwater plume in the vicinity of Larsen Marine	Soil gas	Soil boring locations selected based on the plume boundaries in the vicinity of Larsen Marine	Collection of soil vapor samples from soil gas probes (with PRT adapters) using Summa canisters. Approximately 5 minutes of soil gas sampling per Summa canister.	5[b]	From unsaturated zone (water table estimated to be about 5 feet bgs)	5	TO-15 SIM VOCs	Assist in evaluating if gas migration is a potential migration pathway
Fill data gaps	Indoor air	Three sample locations—one in each of the main buildings on the Larsen Marine property, and one outdoor ambient air sample (background)	VOC samples are collected with SUMMA canisters by opening the flow-controlled valve and slowly filling the canister using a flow controller to collect a time-integrated sample. Typically, samples are collected over an 8-hour period.	4	Above ground	4	TO-15 SIM VOCs	Assist in defining indoor air concentrations within Larsen Marine buildings

[a] Number of samples does not include quality control samples.
[b] An initial five locations were identified based on historical site groundwater data. Five additional locations may be sampled based on the results of the MIP investigation south of Plant 2.



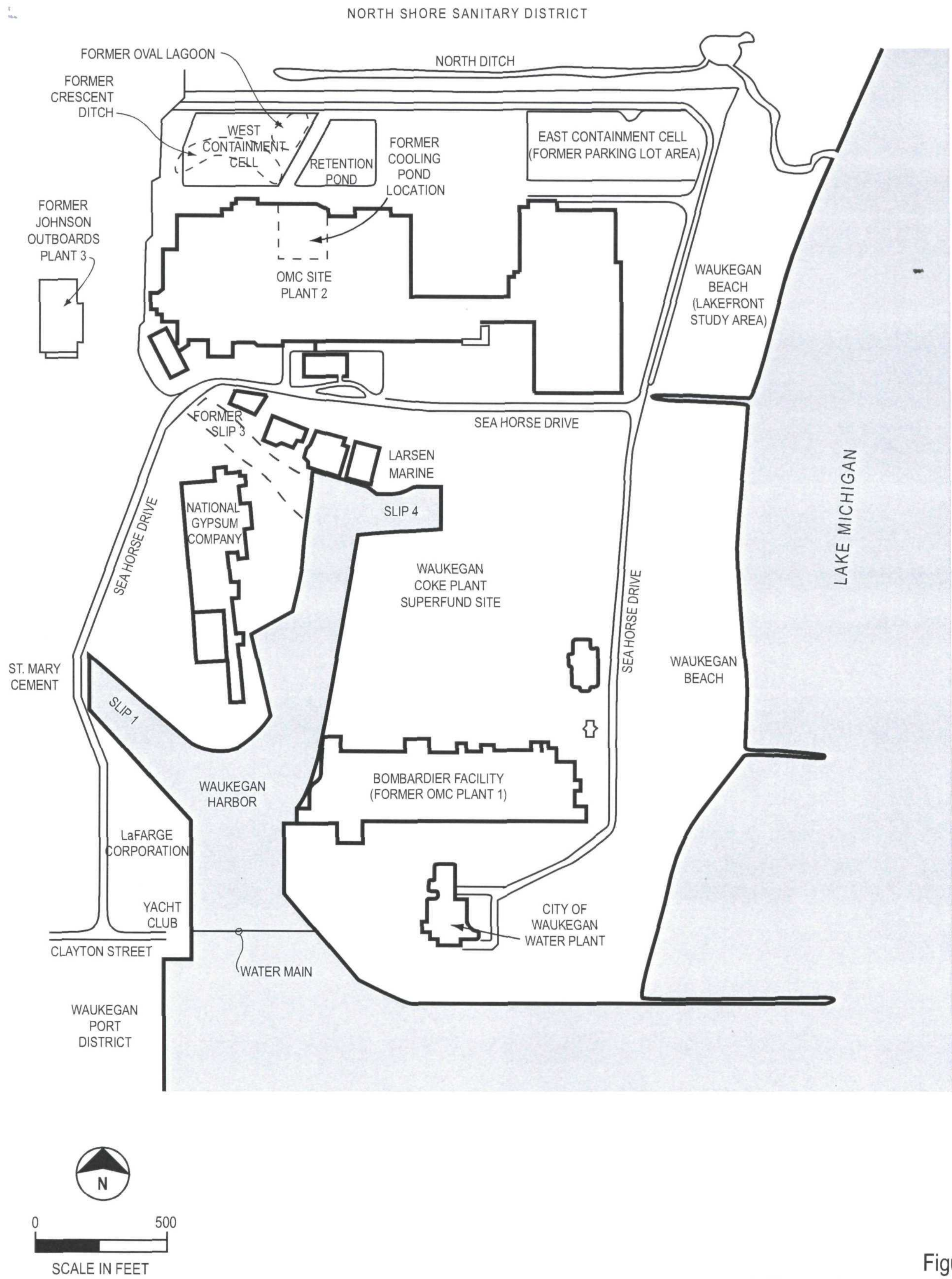
SOURCE: USGS Waukegan Quadrangle Map

0 3,000

SCALE IN MILES

Figure 1-1
Site Location Map
OMC Plant 2

CH2MHILL



SOURCE: ADAPTED FROM USEPA 2002

Figure 1-2
Vicinity Features
OMC Plant 2

E082005021MKE 186305.DE.01 Site Features_1-2 10-12-05tll

CH2MHILL

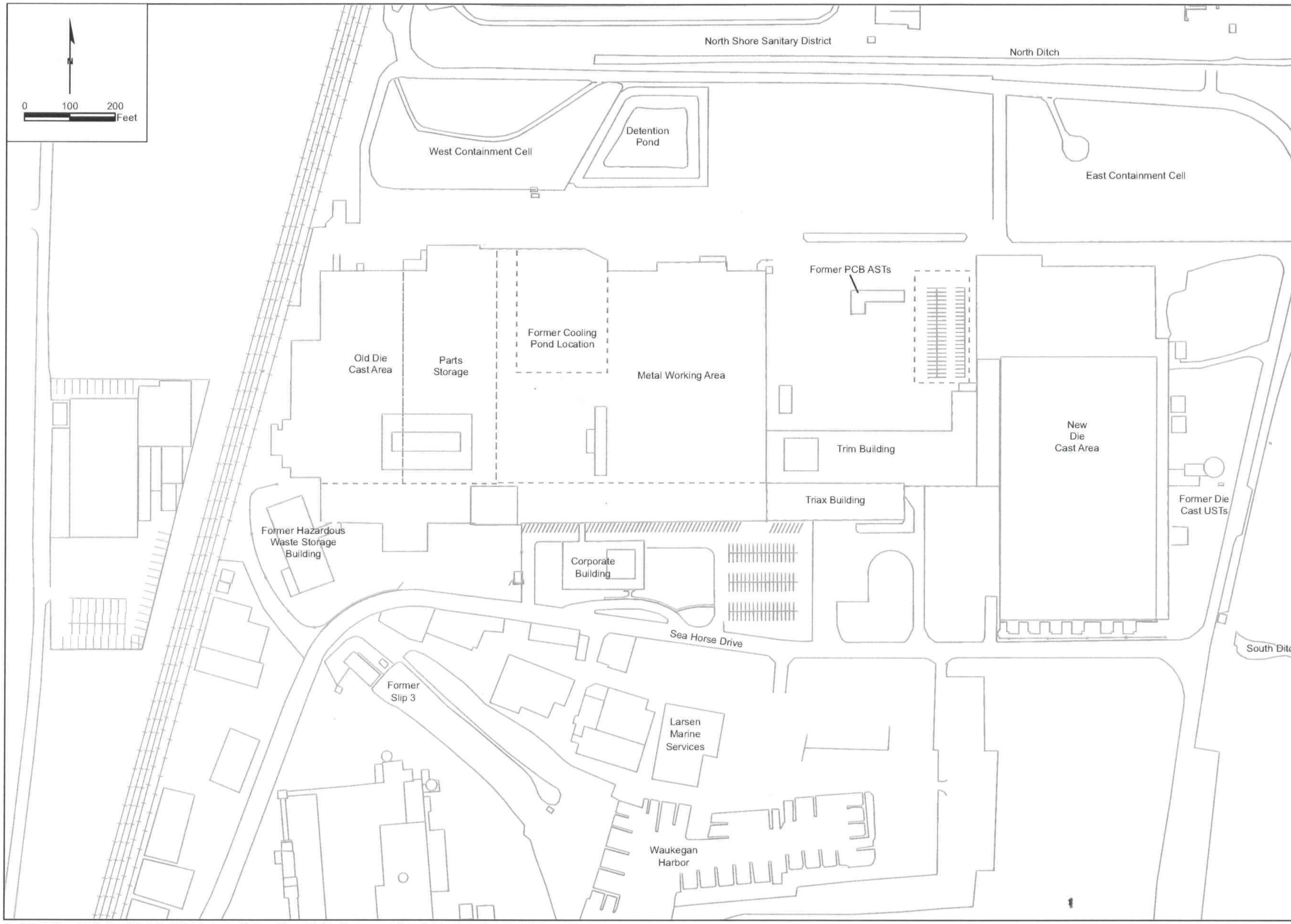
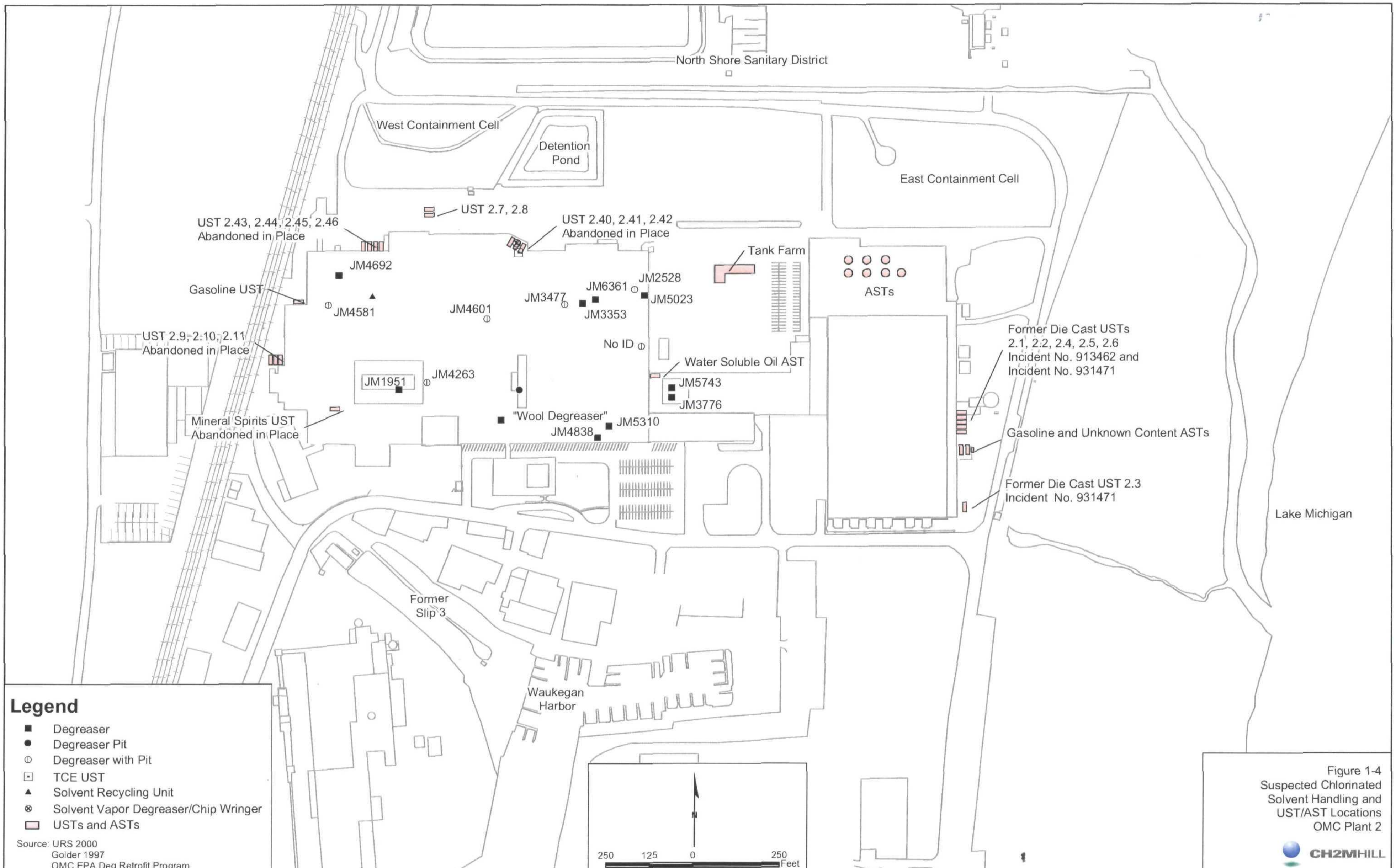


Figure 1-3
Site Features
OMC Plant 2
Waukegan, IL

CH2MHILL

File Path: E:\EPA\186305-OMC\GIS_DATA\MXDS\September05\Report\Figure1-3_Site_Features.mxd, Date: October 07, 2005 8:51:00 AM, User: JHANSEN1



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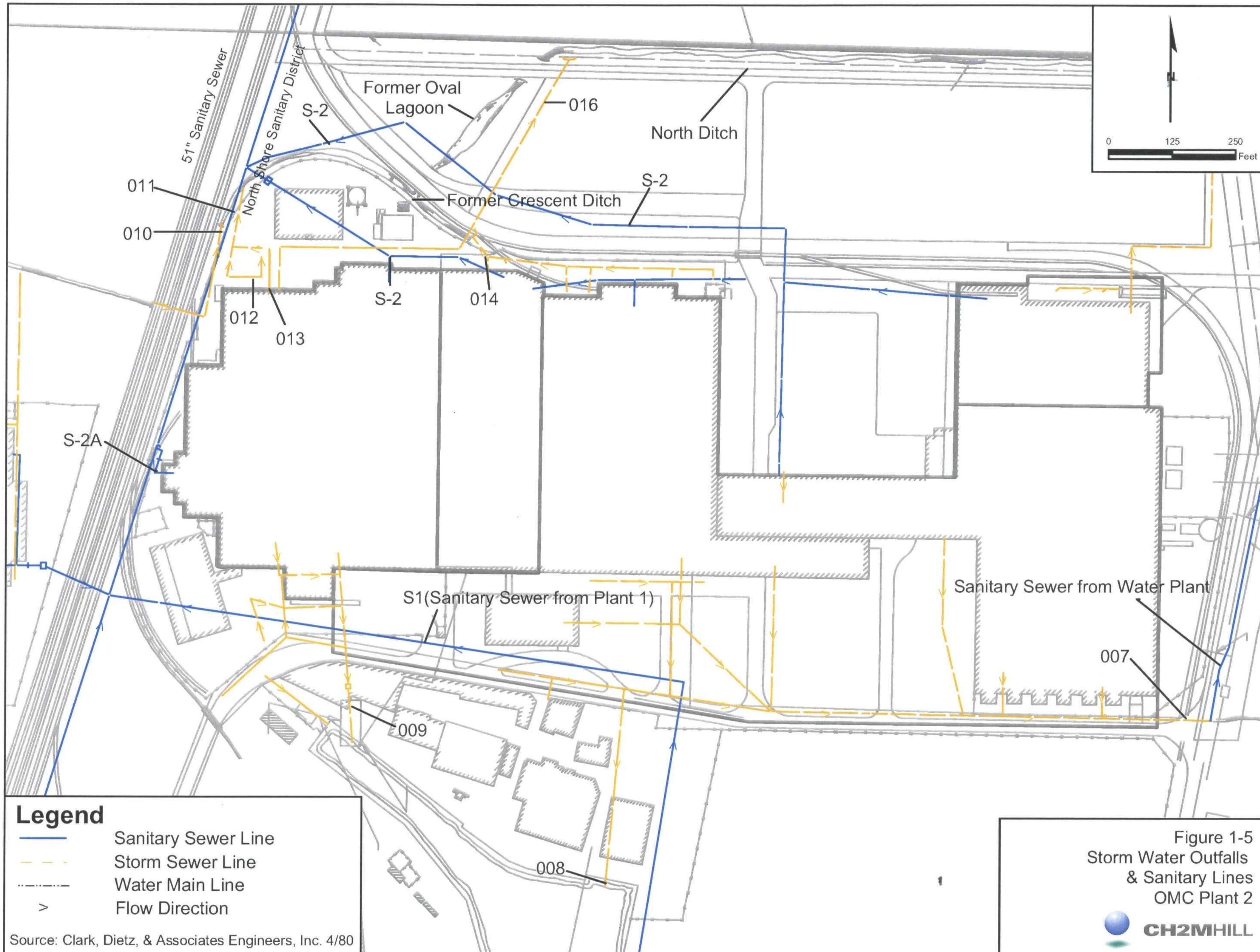

Figure 1-5
Storm Water Outfalls
& Sanitary Lines
OMC Plant 2

File Path: E:\EPA\186305-OMC\GIS_DATA\MXDS\September05\Report\Figure1-5_outfall_locations.mxd, Date: October 10, 2005 2:13:31 PM, User: JHANSEN1

SECTION 2

Physical Site Setting

2.1 Local Demography and Land Use

2.1.1 Current Conditions

The current land use in the vicinity of OMC Plant 2 is primarily marine-recreational and industrial, but also includes utilities and a public beach east of the site (Figure 1-2). Waukegan Harbor, south of the site, is an industrial and commercial harbor used by lake-going freighters and recreational boaters. Presently, Slip 1 is the only operating slip for commercial traffic. The major portion of waterborne commerce in Waukegan Harbor is the receipt of building cement and gypsum that are offloaded from commercial ships in Slip 1 for the manufacture of wall board that are then distributed by land. Gold Bond Building Products (a division of National Gypsum), LaFarge Corporation, and St. Mary's Cement are the major commercial users of the harbor. Gold Bond Building Products stores gypsum in large outdoor piles north of Slip 1. St. Mary's Cement stores cement in silos located west of the slip, and LaFarge Corporation has silos located to the south of Slip 1.

Larsen Marine Service uses Slip 4 for repair, supply, and as docking facilities for private boats. Larsen Marine Service is the largest lakefront yacht dealer in the Chicago metropolitan area. The company provides yacht brokerage for new and used powerboats and sailboats, and offers marine repair services.

The Lake County Board and the City of Waukegan classified land use areas in Lake County in 1987. Land surrounding the northern portion of Waukegan Harbor has been classified as urban, while the beach areas and water filtration plant properties have been classified as open-space areas. The remaining land in the immediate harbor area is classified as special use (Lake County) or residential (City of Waukegan).

The site, surrounding properties, and the City of Waukegan obtain potable water from Lake Michigan. The city has no municipal potable wells. There are some private residential wells within the city limits at a distance from the site (URS 2000).

2.1.2 Future Land Use

In December 2000, OMC declared Chapter ~~13~~ 11 bankruptcy, and began Chapter 7 liquidation in August 2001. Subsequently, the City of Waukegan purchased the WCP site and also acquired the OMC Plant 2 property (Figure 1-2). The WCP and the OMC Plant 2 site has been rezoned to high-density-residential, and the City and other entities are working to revitalize the Waukegan lakefront area.

In December 2003, the City of Waukegan amended its 1987 Comprehensive Plan to include the *Waukegan Lakefront - Downtown and Lakefront Master Plan* and supporting documents prepared by Skidmore, Owings & Merrill, LLP and its consulting team (City of Waukegan Ordinance No. 03-O-140). The Master Plan and documents provided by the City of

Waukegan were reviewed with respect to the anticipated future land use of the OMC Plant 2 and surrounding properties. The plan defines the northern portion of the OMC Plant 2 property as an "Eco-Park" development that transitions to mixed-use marina-related commercial and residential use on the southern portion of the property. Similar plans are anticipated for the WCP site. The City is in the early stages of its process of rezoning various lakefront parcels consistent with the Master Plan (Deigan 2004). A concept of the City's vision for the harbor area is presented in Figure 2-1.

2.2 Geology and Hydrogeology

2.2.1 Stratigraphy

The geologic data collected during the RI field activities are consistent with publicly available regional data and with the data collected during previous investigations on the site and on adjacent properties. The subsurface materials encountered during the investigations include near-surface fill materials above a naturally occurring sand unit that overlies a clay till. These unconsolidated materials overlie the uppermost bedrock in the area comprised of a sequence of dolomitic bedrock formations. The results of the properties of the subsurface materials are summarized in Table 2-1. Representative stratigraphic sections, developed from the borings shown in Figure 2-2, are presented in Figures 2-3, 2-4 and 2-5.

The uppermost materials include fills that were used to build up low-lying areas for development. The fill deposits extend to 2 to 12 feet below ground surface and typically consist of silty or clayey sand and/or gravel deposits with wood fragments, bricks, and other debris.

The naturally occurring material underlying the fill consists of sand and/or gravel to a depth of about 25 to 30 feet. These materials are part of the Equality Formation that was deposited as beach sand along the shore of former glacial Lake Chicago (IEPA 1994). The sand is typically described as either poorly graded (SP) or silty sand (SM). In general, the sequence appears to become finer with depth with the silty sands encountered in the lower half of the column. On average, the unit is described as containing 5 to 15 percent silt. Sand sizes range from fine to coarse. Some coarse sand lenses and also shell fragment zones occur, but not at consistent elevations across the site. Measured porosity values for the saturated sand unit range from about 19 to 41 percent with an average of 30 percent (see Table 2-1). A silty or clayey, sandy gravel (GM or GC), approximately 0.3 to 0.5 foot in thickness, is often noted in the interval immediately above the silty clay till.

Underlying the Equality Formation is the clay Wadsworth Till of the Wendron Formation, which is approximately 70 to 80 feet thick (IEPA 1994). The till extends from approximately 30 to 100 feet deep and consists of a hard or stiff gray, lean clay with sand and some gravel. The surface of the till is irregular, and generally slopes gently downward from west to east beneath the area, and is relatively flat from north to south. The contour map of the till surface presented in Figure 2-6 was generated based on information from soil and monitoring well boring data and cone penetrometer testing. Roughly 10 feet of vertical drop in the till occurs across the site from west to east. Variability in till surface elevation is evident where the data points are most dense. In situ permeability tests of the till indicate a horizontal and vertical coefficient of permeability at approximately 10^{-7} centimeters per second (cm/sec; Canonie 1991).

Regional information indicates that the Silurian-age dolomite comprises the uppermost bedrock in the area. Underlying the dolomite are the Maquoketa Group shales that act as an aquitard, separating the Silurian dolomites from deeper bedrock units (USEPA 1999).

2.2.2 Groundwater

Groundwater is encountered within the sands of the Equality Formation at depths ranging between 2 and 7 feet, depending on the ground surface elevation. This depth is heavily influenced by the surface water elevations present in Lake Michigan and the Waukegan Harbor. The underlying till unit forms the lower boundary of this unconfined aquifer and likely acts as a barrier to the vertical contaminant migration.

In situ hydraulic conductivity testing of the sand aquifer was performed at 36 well locations and included testing of the shallow and deep portions of the aquifer. Hydraulic testing methods and results are provided in the *In Situ Field Hydraulic Conductivity Testing* technical memorandum in Appendix B. A summary of the results is presented on Table 2-2. Shallow monitoring well screens typically crossed the water table such that the average hydraulic conductivity for the shallow zone, 2.16×10^{-2} cm/sec, is representative of the upper portion of the aquifer. Deeper well screens were typically situated to screen the lowest portion of the aquifer, just above the clay till. The average hydraulic conductivity for the deep zone is 4.56×10^{-3} cm/sec. The geometric mean for both shallow and deep wells is 2.0×10^{-2} cm/sec.

Groundwater elevation maps for the shallow and deep portions of the aquifer are presented on Figures 2-7 and 2-8, respectively. The horizontal groundwater flow direction in the shallow portion of the aquifer is from west to east across the northern portion of the site (toward Lake Michigan) under an average horizontal groundwater gradient of 0.001 foot/foot (ft/ft). Shallow groundwater flow direction in the southern portion of the site is toward the south (Waukegan Harbor) with an average horizontal gradient of 0.002 ft/ft. Based on the average porosity and the average hydraulic conductivity value (30 percent and 2.2×10^{-2} cm/sec, respectively), the average linear groundwater velocity for the shallow zone is estimated to range from 70 to 150 feet per year.

The groundwater elevation map for the deeper portion of the aquifer indicates a flow direction pattern similar to the upper zone, with a portion in the middle of the site showing a very flat gradient (0.0004 ft/ft). Outside of this area, average horizontal gradients in the deeper portion of the aquifer range from 0.0008 to 0.002 ft/ft. The average linear groundwater flow velocities, using an average porosity of 30 percent, range from approximately 6 to 30 feet per year across the site in the deeper zone.

Vertical gradients between the shallow and deep portions of the aquifer are almost non-existent in most places, ranging from a measured 0.004 foot in the downward direction to -0.06 foot in the upward direction (Table 2-3). However, 12 of the 18 well nests either register no difference in groundwater elevation between shallow and deep wells, or a negligible difference of 0.001 foot. This information confirms that the shallow and deep well locations are essentially monitoring the same aquifer.

2.2.3 Hydrology and Sediments

Surface water features near OMC Plant 2 include the North Ditch, South Ditch, Waukegan Harbor, and Lake Michigan. Local and regional surface water drainage eventually reaches Lake Michigan. Average annual precipitation is 34 to 36 inches per year based on data from 1961 to 1990 (CH2M HILL 2004).

As described in the FSP (CH2M HILL 2004), the sediment investigation was limited to probing the North and South ditches to determine the volume of sediments. Details of the sediment volume investigation and estimate are presented in the *Soil and Sediment Investigation* technical memorandum in Appendix B. The results of the sediment thickness measurements along each transect and the estimated sediment volume for the North and South ditches are approximately 3,477 and 731 cubic yards, respectively.

2.3 Ecological Setting

The most significant ecological features near the site include Lake Michigan, Waukegan Beach, and the Illinois Beach State Park. The Lake Michigan shoreline, including a portion of Waukegan Beach, is located east of the site. The Illinois Beach State Park is located about 1.5 miles north of the site. The locations of these ecological features are shown in Figure 1-1.

2.3.1 Lake Michigan

Lake Michigan provides a diverse aquatic habitat and supports commercial and sport fishery. Yellow perch and bloaters are harvested commercially. The Lake Michigan sport-fishing catch consists primarily of yellow perch; chinook and coho salmon; and steelhead, brown, and lake trout. Two state-threatened fish species, the longnose sucker and the lake whitefish, have been reported in Lake Michigan between Zion and Waukegan. The last sightings of these species were in 1985 for the longnose sucker and in 1991 for the lake whitefish (CH2M HILL 1995).

now increasing *

Waukegan Harbor is located west and south of the Waukegan Beach area. In the past, fishing advisories were posted at the Waukegan Harbor (based on PCB data from fish sampling), but recent monitoring by IEPA indicates contaminant concentrations in fish continue to decrease. As a result, warning signs from within the harbor have been removed because sampling has recently shown declines in concentrations to the same level as the greater Lake Michigan area (USEPA 2000). Factors that limit Waukegan Harbor's value as a habitat include regular industrial boat traffic that stirs up and muddies the harbor waters; dredging operations that disturb harbor sediments and affect surface water quality; and the lack of cover provided by the deep, vertical harbor walls (CH2M HILL 1995).

The Illinois Department of Conservation (IDOC) has been stocking salmon and trout into Lake Michigan near Waukegan Harbor since 1957 (CH2M HILL 1995). The stocked fish are released into the new harbor area just south of the Waukegan Harbor's southern breakwater (Figure 1-1). The salmon and trout migrate back to the release site during spawning season.

2.3.2 Waukegan Beach

General Description

Waukegan Beach is a sand and dune area east of the site that is used primarily for recreational purposes (i.e., beachcombing, swimming, picnicking, etc.). The beach extends north along the Lake Michigan shoreline to the Illinois Beach State Park (Figure 1-1). In the past, the City of Waukegan would periodically grade the beach to enhance recreational opportunities, resulting in a disturbance to the sand dune communities. The City has discontinued grading the beach, allowing the partial redevelopment of the dune communities (CH2M HILL 1995).

Historically, Lake Michigan occupied many portions of the Waukegan Beach area, but has receded over the years and exposed much of the fine to very fine sandy soils. A seawall barrier constructed from large cement and quarried boulders define the western limit of the beach area and former extent of Lake Michigan wave activity. Some of the concrete rubble breakwall adjacent to the Plant 2 site was removed by the City of Waukegan in June 2005.

Waukegan Beach is comprised of two general areas: Waukegan Beach east of OMC Plant 2 and north of the South Ditch, and Waukegan Beach south of the South Ditch and east of Seahorse Drive.

Waukegan Beach east of OMC Plant 2 has never been developed with surface structures and is generally inaccessible. Wooded areas have been re-established east of the former seawall barrier and extend from the North Ditch to the South Ditch. Most of the remaining portions of the Waukegan Beach east of this tree line are rolling sand dunes with sporadic tree and natural grass land cover that lead eastward to a gently sloping beach.

The southern portion of Waukegan Beach east of Seahorse Drive, especially near the shoreline south of South Ditch, is commonly used by the general public. This portion of Waukegan Beach has been developed with some structures located just east of the parking lot and a seawall barrier extending out into Lake Michigan serving as wave protection for outer portions of Waukegan Harbor.

In general, wetland vegetation communities are scattered throughout the Waukegan Beach area along Lake Michigan and are typically characterized by creeping juniper and nodding wild rye (CH2M HILL 1995).

Endangered, Threatened, or Rare Species

The Illinois Department of Natural Resources identified 13 plants species, 1 invertebrate species, and 5 bird species that are threatened or endangered (federal or state) and occur within 1 mile of OMC Plant 2 (Kieninger 2005). The bird species include the following: Henslow's sparrow, upland sandpiper, peregrine falcon, common tern, and the black-crowned night heron. The piping plover, ring-billed gull, brewer's blackbird, and yellow-crowned night heron may have also nested or attempted to nest at Waukegan Beach (CH2M HILL 1995). None of the species are known to nest adjacent to the site. A common tern nesting site is near the Commonwealth Edison Waukegan Power Plant, which is located about 1.5 miles north of the site. This is the only known common tern nesting colony in Illinois (IEPA 1994).

CAG
* note minutes

Falcons at Midwest Gen. plant.

Four threatened or endangered plant species have been found at Waukegan Beach. The species are American sea rocket (*Cakile edentula*; state-threatened), seaside spurge (*Chamaesyce polygonifolia*; state-endangered), American beachgrass (*Ammophila breviligulata*; state-endangered), and Kalm's St. John's wort (*Hypericum kalmianum*; state-endangered). A naturalist with IDOC stated that suitable habitat exists for other rare plant species, even though they were not observed during a cursory survey (CH2M HILL 1995). Sea rocket and seaside spurge are adapted to sand pocket habitats and are likely to be found only as primary successional species of the upper reaches of a bare sand habitat. Beachgrass (also known as marram grass) may occur as high as the foredune, just beyond the upper reaches of the beach sand habitat, but is not likely to occur further inland, and serves the important function of stabilizing the sand dunes (CH2M HILL 1995). Beachgrass dominates the area, and is found evenly distributed dispersed in a near continuous cover across the entire area (Diegan 2004). Kalm's St. John's wort is represented by six to eight plants located in the southwestern corner of Waukegan Beach east of OMC Plant 2 (Diegan 2004).

Habitat and Biota of the Lakefront Study Area

The Lakefront Study Area refers to the 13-acre area on the easternmost side of the OMC Plant 2 property, extending from the North Shore Sanitary District's southern property boundary to the South Ditch. The North Shore Sanitary District's secondary outfall joins up with the North Ditch. Wind and wave action have shifted the drainage pattern of the North Ditch and carved a drainage swale across the northeastern portion of the area to Lake Michigan. A stormwater ditch and former OMC Plant 2 outfall forming the South Ditch is beginning to develop into a wetland area.

An environmental investigation, including habitat identification, was performed by Deigan & Associates, LLC for the City of Waukegan in July 2004. The resulting *Environmental Site Investigation Report* is included in Appendix A. A summary of the findings are presented below.

The area is characterized as being a dry sand prairie/foredune community dominated by marram grass, little bluestem grass (*Schizachyrium scoparium*) and sand reed (*Camlamovilfa longifolia*). Forb diversity (number of species and abundance of each species) is quite low with most of the species, often represented by only one or two individuals, occurring along a narrow strip on the west edge of the property.

Some depressional areas within the sand prairie/foredune community contain fairly large populations of lake shore rush (*Juncus baltisu littoralis*), suggesting that these areas are near the water table.

Three wetland areas are represented by drainage ditches on the north and south edges of the area and by a small depression along the North Ditch near the lakeshore. A narrow terrace along the north side of the South Ditch contained significant amounts of conservative wetland species including:

- Ohio goldenrod (*Solidago ohiensis*)
- Richardson's rush (*J. alpinus rariflorus*)
- Prairie wedge grass (*Sphenopholis obtusata*)
- Green twayblade orchids (*Liparis loeselii*)

2.3.3 Illinois Beach State Park

The Illinois Beach State Park is a 4,160-acre natural area situated along the Lake Michigan shore (Figure 1-1). The park contains a diverse habitat, including cattail marshes, sand prairies, and savannas. An avian ecological survey conducted in 1981 recorded 116 bird species within the park, and 91 were believed to be nesting within park boundaries (IEPA 1994). Other animals observed at the park include 28 species of mammals, 14 species of reptiles, and 9 species of amphibians (CH2M HILL 1995).

A listing of state-listed threatened and endangered species that have been recorded in the Illinois Beach State Park includes 12 endangered plant species, 2 threatened plant species, 3 endangered bird species, and 2 threatened bird species. Six federally listed threatened or endangered species that could potentially inhabit the park are also listed.

TABLE 2-1
Soil Properties
OMC Plant 2

Bulk Density

Material[a]	Number of Samples Collected	Range of Bulk Density (g/cm^3)	Average Bulk Density (g/cm^3)	USCS Classifications
Sands and Silty Sands	36	1.23–1.89	1.45	SP, SM/SP, SP/SM, SP/GP
Saturated Clay Materials	3	1.19–1.84	1.51	CL, HF/OH
Saturated Gravel Materials	3	1.27–1.54	1.40	GM, GP, GC
Fill Materials	12	1.20–1.59	1.39	HF

Porosity

Material	Number of Samples Collected	Range of Porosity (%)	Average porosity (%)	USCS Classifications
Sands and Silty Sands	36	18.50–41.07	31.50	SP, SM/SP, SP/SM, SP/GP
Saturated Clay Materials	3	10.79–32.39	20.09	CL, HF/OH
Saturated Gravel Materials	3	29.43–33.42	31.90	GM, GP, GC
Fill Materials	12	31.79–49.03	42.83	HF

Material	Average Porosity (%)
Average Saturated	30.00
Average Unsaturated	40.22
Average Saturated and Unsaturated	33.41

Total Organic Carbon

Material	Frequency of Sample Detections	Range of Detected TOC (mg/kg)	Average TOC[b] (mg/kg)	USCS Classifications
Sands and Silty Sands	8 of 36	170–19000	940	SP, SM/SP, SP/SM
Saturated Clay Materials	2 of 2	1200–2000	1600	CL, OL
Saturated Gravel Materials	1 of 2	1900	970	GM, GP/GM
Fill Materials	6 of 15	120–9600	1600	HF

Soil Oxidant Demand

Material	Frequency of Sample Detections	Range of Detected SOD (g/kg)	Average SOD (g/kg)	USCS Classifications
Sands and silty sands	12 of 13	0.01–0.6	0.11	SP, SM/SP, SP/SM
Saturated Clay Materials	1 of 1	1.4	1.40	CL
Fill Materials	8 of 8	0.006–0.19	0.07	HF, SP

[a]Boring Location SO-066 sample depth 29–30 ft bgs is sample of silty clay till. Bulk density of 1.19 g/cm^3.
[b]Average TOC value is the geometric mean of the data with nondetections represented by one-half the detection limit.

TABLE 2-2
In Situ Hydraulic Test Result Summary
OMC Plant 2

Shallow Wells		Deep Wells	
Well ID	Hydraulic Conductivity (cm/sec)	Well ID	Hydraulic Conductivity (cm/sec)
MW-500S	7.32E-02	MW-500D	3.47E-03
MW-501S	1.55E-02	MW-501D	2.95E-03
MW-502S	1.39E-02	MW-502D	5.35E-03
MW-503S	6.13E-03	MW-503D	4.85E-03
MW-504S	3.55E-02	MW-504D	3.83E-03
MW-505S	1.75E-02	MW-505D	5.64E-03
MW-506S	4.73E-02	MW-506D	5.26E-03
MW-507S	1.18E-02	MW-507D	3.15E-03
MW-508S	2.18E-02	MW-508D	3.46E-03
MW-509S	1.63E-02	MW-509D	6.90E-03
MW-510S	1.07E-02	MW-510D	4.74E-03
MW-511S	2.59E-02	MW-511D	4.67E-03
MW-512S	1.15E-02	MW-512D	4.26E-03
MW-513S	9.59E-02	MW-513D	5.99E-03
MW-514S	3.28E-02	MW-514D	7.89E-03
MW-515S	1.10E-02	MW-515D	4.35E-03
MW-516S	7.11E-02	MW-516D	2.61E-03
MW-517S	1.12E-02	MW-517D	6.40E-03
Geometric Mean	**2.16E-02**	**Geometric Mean**	**4.56E-03**

TABLE 2-3
Vertical Hydraulic Gradients
OMC Plant 2

Location	Top of Casing Elevation (ft amsl)	Elevation Ground Surface (ft amsl)	Top of Screened Interval (ft bgs)	Bottom of Screened Interval (ft bgs)	Top of Screened Interval (ft amsl)	Bottom of Screened Interval (ft amsl)	Screen Midpoint Elevation (ft amsl)	Distance between Screen Midpoints	May 2005 Depth to Water (btoc)	May 2005 Total Depth (btoc)	May 2005 GW Elevation (ft amsl)	May 2005 vertical gradient*	Aquifer
MW-500D	586.19	583.65	20.50	25.50	563.15	558.15	560.65		4.02	27.12	582.17		Deep
MW-500S	586.18	583.71	1.50	6.50	582.15	577.21	579.68	19.03	4.03	9.07	582.15	0.001	Shallow
MW-501D	585.76	583.29	23.00	28.00	560.65	555.29	557.97		5.21	31.27	580.55		Deep
MW-501S	585.83	583.36	1.50	6.50	582.15	576.86	579.51	21.54	5.23	10.22	580.60	-0.002	Shallow
MW-502D	587.33	584.84	18.00	23.00	565.65	561.84	563.75		4.70	25.84	582.63		Deep
MW-502S	587.44	584.93	2.00	7.00	581.65	577.93	579.79	16.05	4.79	9.87	582.65	-0.001	Shallow
MW-503D	584.63	584.86	20.00	25.00	563.65	559.86	561.76		2.40	23.89	582.23		Deep
MW-503S	584.66	584.91	2.00	7.00	581.65	577.91	579.78	18.03	2.41	7.33	582.25	-0.001	Shallow
MW-504D	588.16	588.42	24.00	29.00	559.65	559.42	559.54		6.16	28.50	582.00		Deep
MW-504S	588.23	588.42	4.00	9.00	579.65	579.42	579.54	20.00	6.22	9.41	582.01	-0.0005	Shallow
MW-505D	587.97	588.36	22.00	27.00	561.65	561.36	561.51		5.52	25.42	582.45		Deep
MW-505S	588.13	588.36	4.00	9.00	579.65	579.36	579.51	18.00	5.68	8.78	582.45	0.000	Shallow
MW-506D	588.19	588.42	23.00	28.00	560.65	560.42	560.54		5.99	27.53	582.20		Deep
MW-506S	588.18	588.42	4.00	9.00	579.65	579.42	579.54	19.00	5.97	9.23	582.21	-0.001	Shallow
MW-507D	586.34	583.93	20.00	25.00	563.65	558.93	561.29		4.53	26.08	581.81		Deep
MW-507S	586.32	583.88	2.00	7.00	581.65	576.88	579.27	17.98	4.50	9.64	581.82	-0.001	Shallow
MW-508D	584.68	584.96	24.00	29.00	559.65	555.96	557.81		3.70	29.46	580.98		Deep
MW-508S	584.67	584.93	1.50	6.50	582.15	578.43	580.29	22.48	3.69	6.23	580.98	0.000	Shallow
MW-509D	584.19	584.41	14.50	19.50	569.15	564.91	567.03		1.99	19.38	582.20		Deep
MW-509S	584.22	584.42	2.00	7.00	581.65	577.42	579.54	12.51	1.21	6.46	583.01	-0.065	Shallow
MW-510D	588.07	588.33	22.00	27.00	561.65	561.33	561.49		5.95	27.28	582.12		Deep
MW-510S	588.05	588.33	4.00	9.00	579.65	579.33	579.49	18.00	5.97	9.23	582.08	0.002	Shallow
MW-511D	588.22	588.41	23.00	28.00	560.65	560.41	560.53		6.51	28.51	581.71		Deep
MW-511S	588.15	588.41	4.00	9.00	579.65	579.41	579.53	19.00	6.46	9.27	581.69	0.001	Shallow
MW-512D	584.60	584.86	20.00	25.00	563.65	559.86	561.76		3.09	25.53	581.51		Deep
MW-512S	584.56	584.83	2.50	7.50	581.15	577.33	579.24	17.49	3.06	7.34	581.50	0.001	Shallow
MW-513D	585.29	585.54	20.50	25.00	563.15	560.54	561.85		3.65	23.31	581.64		Deep
MW-513S	585.23	585.44	2.50	7.50	581.15	577.94	579.55	17.70	3.60	7.21	581.63	0.001	Shallow
MW-514D	584.70	584.92	20.00	25.00	563.65	559.92	561.79		3.45	24.90	581.25		Deep
MW-514S	584.70	584.70	2.50	7.50	581.15	577.20	579.18	17.39	3.45	6.93	581.25	0.000	Shallow
MW-515D	583.90	583.88	21.00	26.00	562.65	557.88	560.27		2.34	26.23	581.56		Deep
MW-515S	583.71	583.97	3.00	8.00	580.65	575.97	578.31	18.05	2.47	7.90	581.24	0.018	Shallow
MW-516D	583.78	584.04	20.00	25.00	563.65	559.04	561.35		3.77	25.41	580.01		Deep
MW-516S	583.80	584.08	3.00	8.00	580.65	576.08	578.37	17.02	3.75	8.23	580.05	-0.002	Shallow
MW-517D	586.64	584.19	15.00	20.00	568.65	564.19	566.42		4.21	22.53	582.43		Deep
MW-517S	586.64	584.18	2.50	7.50	581.15	576.68	578.92	12.49	4.26	9.75	582.38	0.004	Shallow

Notes
Survey coordinates are NAD 1983 State Plane Illinois East FIPS 1201 Feet
ft amsl = feet above mean sea level
ft btoc = feet below top of casing
*Negative value for vertical gradient denotes downward direction

LEGEND

OMC Plant 2 Building Outline

North

Source:
Skidmore, Owings & Merrill LLP - Master Planning
Conservation Design Forum - Ecological, Open Space and Landscape Planning
Site Design Group, Ltd. - Park and Streetscape Concepts
US Equities - Environmental Resource Identification

Sally Foster - Community Outreach
Land Strategies, Inc. - Transportation Planning
Development Concepts, Inc. - Market Analysis & Development Strategies
CH Johnson Consulting - Economic & Market Analysis

Figure 2-1
Waukegan Lakefront-Downtown Master Plan/Urban Design Plan
OMC Plant 2

CH2MHILL

E082005021MKE Figure2-1_Harborfront_v3.ai 10-12-05 jls/tll

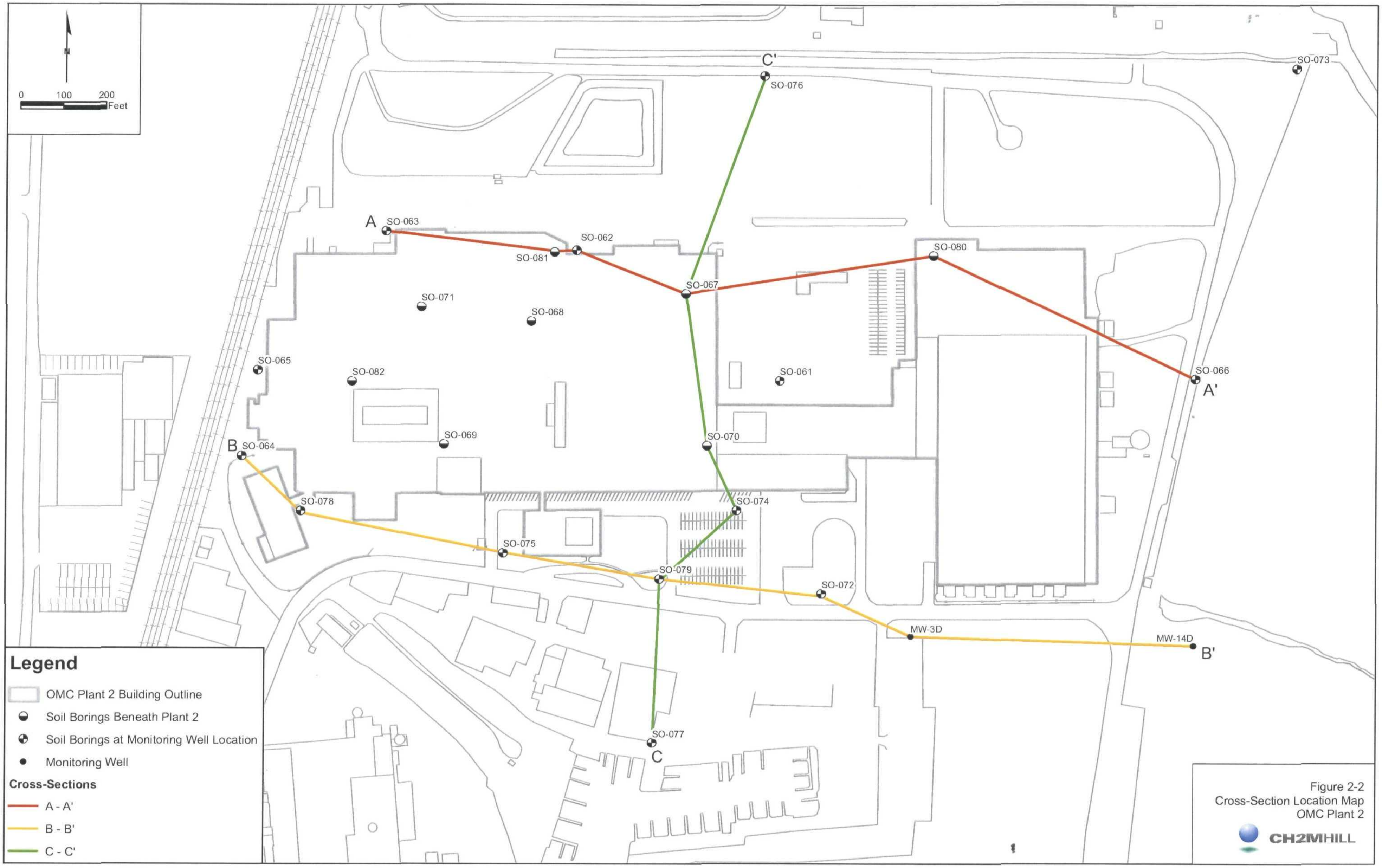

Figure 2-2
Cross-Section Location Map
OMC Plant 2

CH2MHILL

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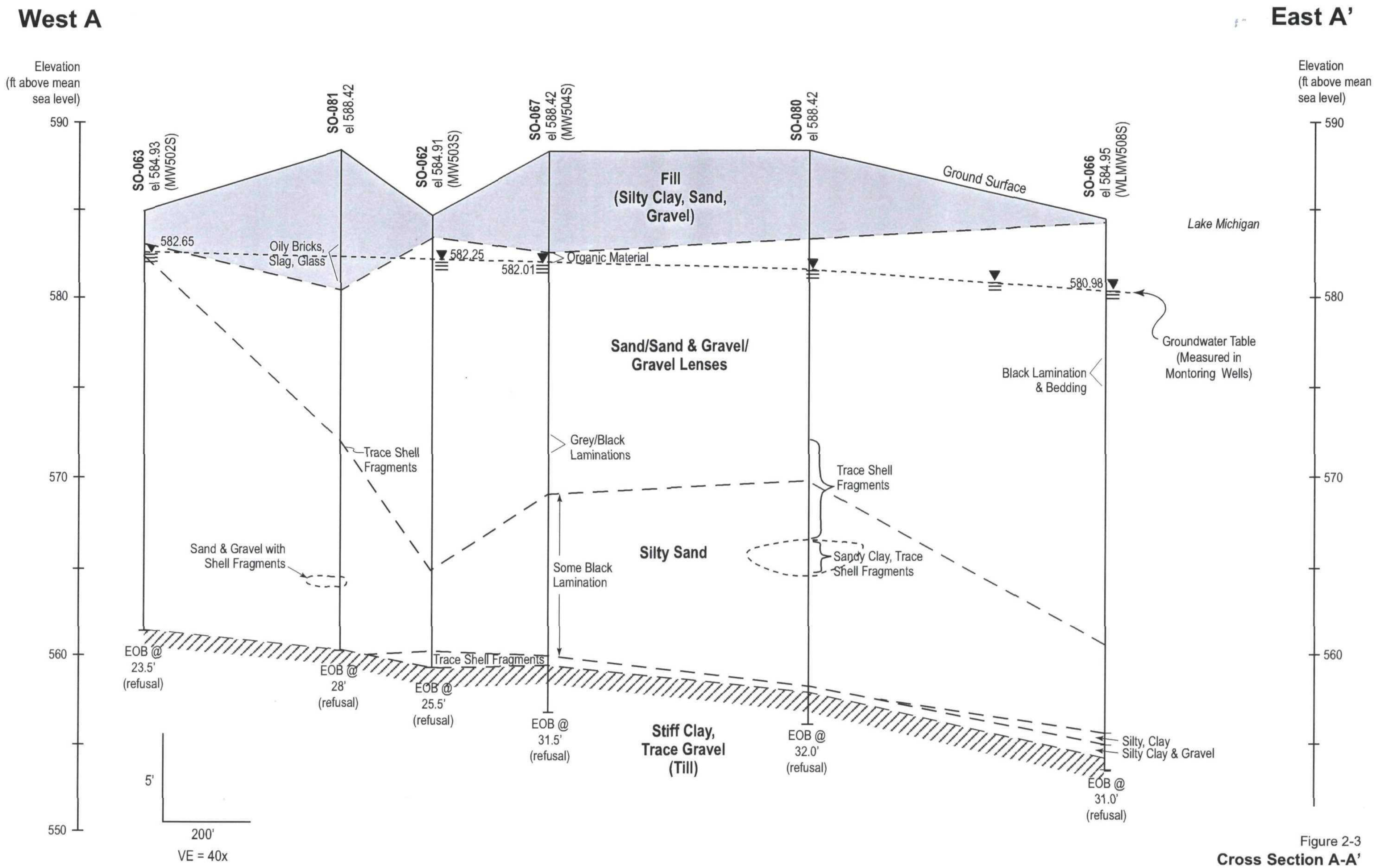

Figure 2-3
Cross Section A-A'
OMC Plant 2
CH2MHILL

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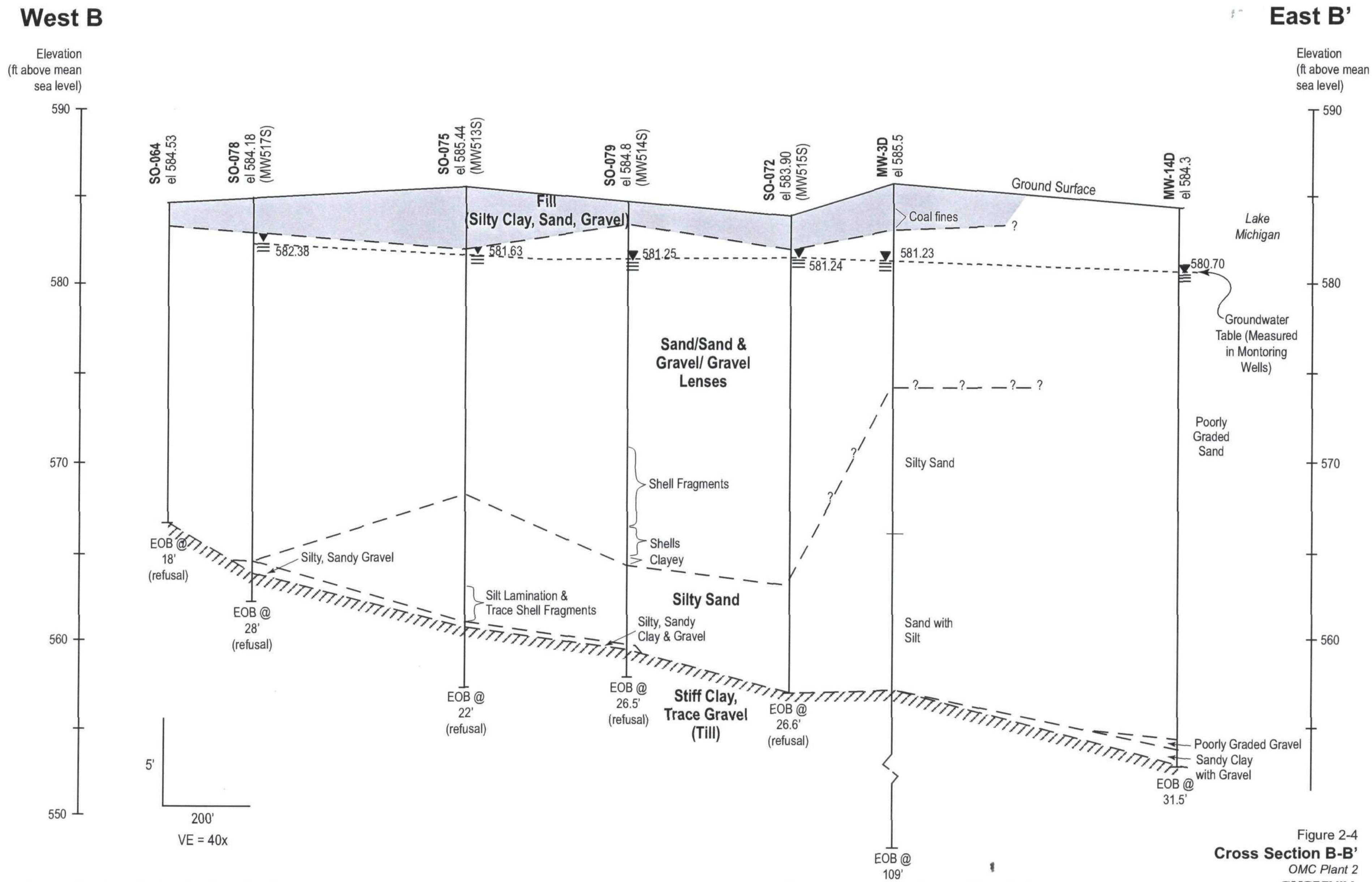

Figure 2-4
Cross Section B-B'
OMC Plant 2
CH2MHILL

ES082005021MKE X-sec B-B'_v2.ai 9-27-05

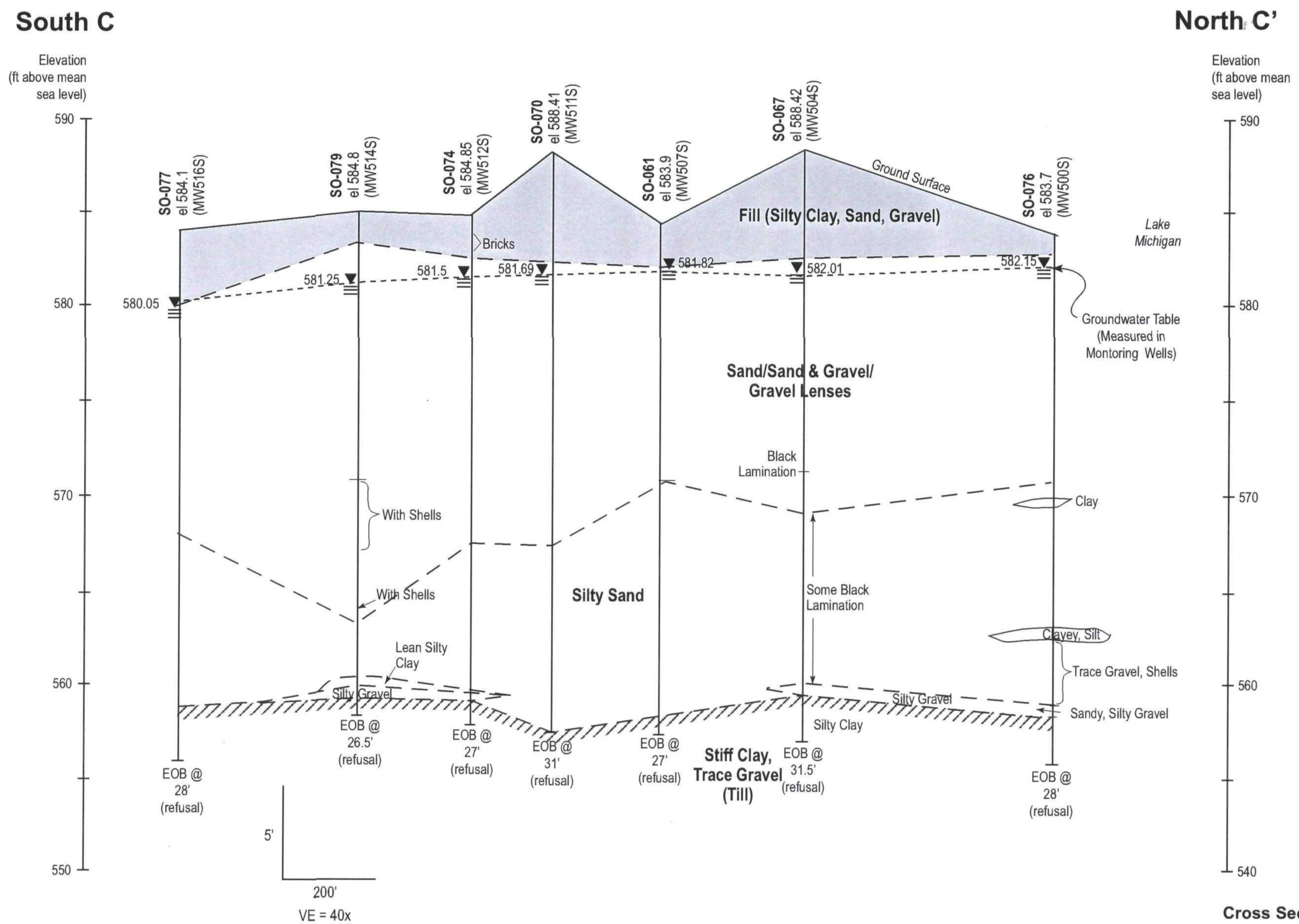

Figure 2-5
Cross Section C-C'
OMC Plant 2

CH2MHILL

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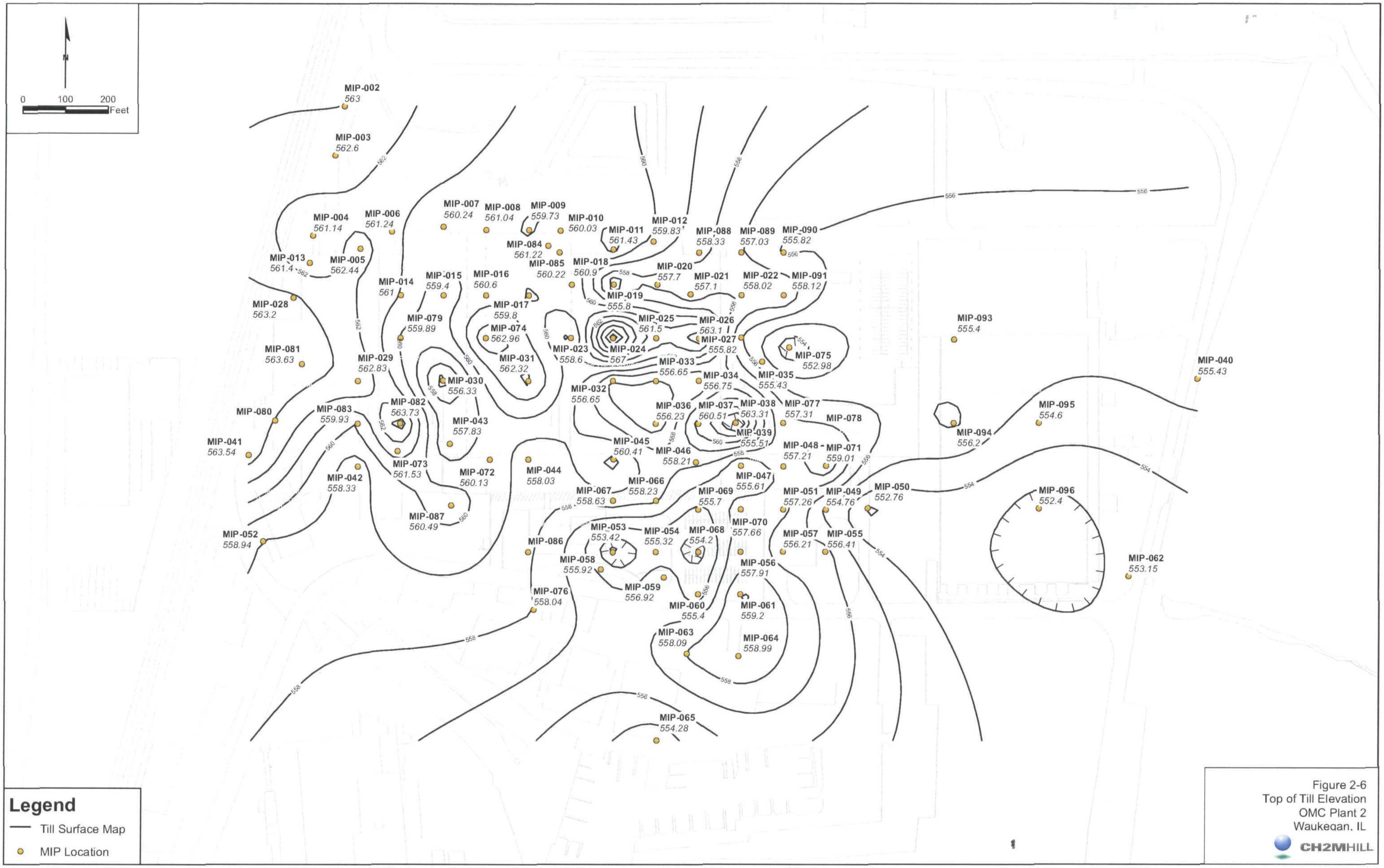

Figure 2-6
Top of Till Elevation
OMC Plant 2
Waukegan, IL

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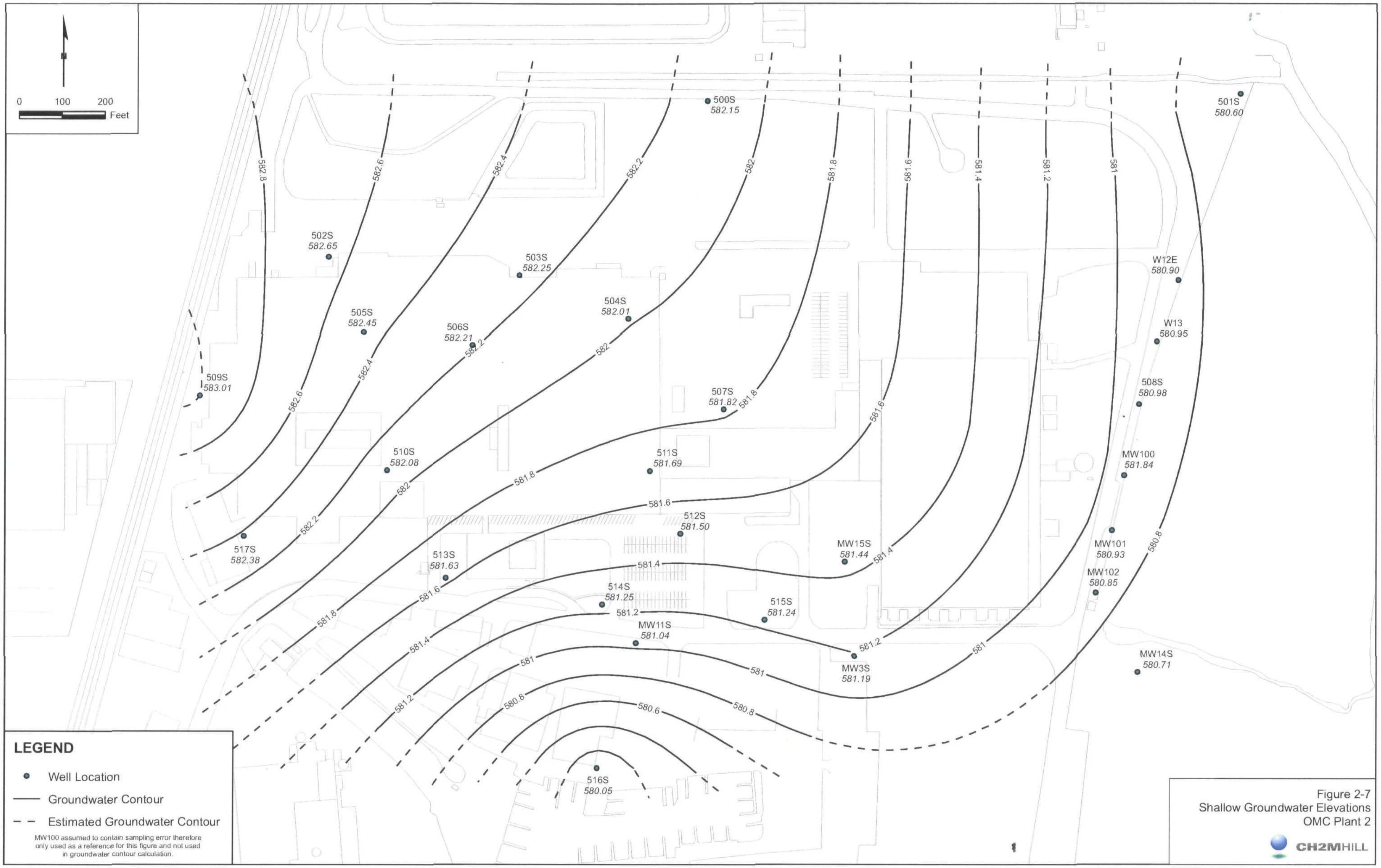

Figure 2-7
Shallow Groundwater Elevations
OMC Plant 2

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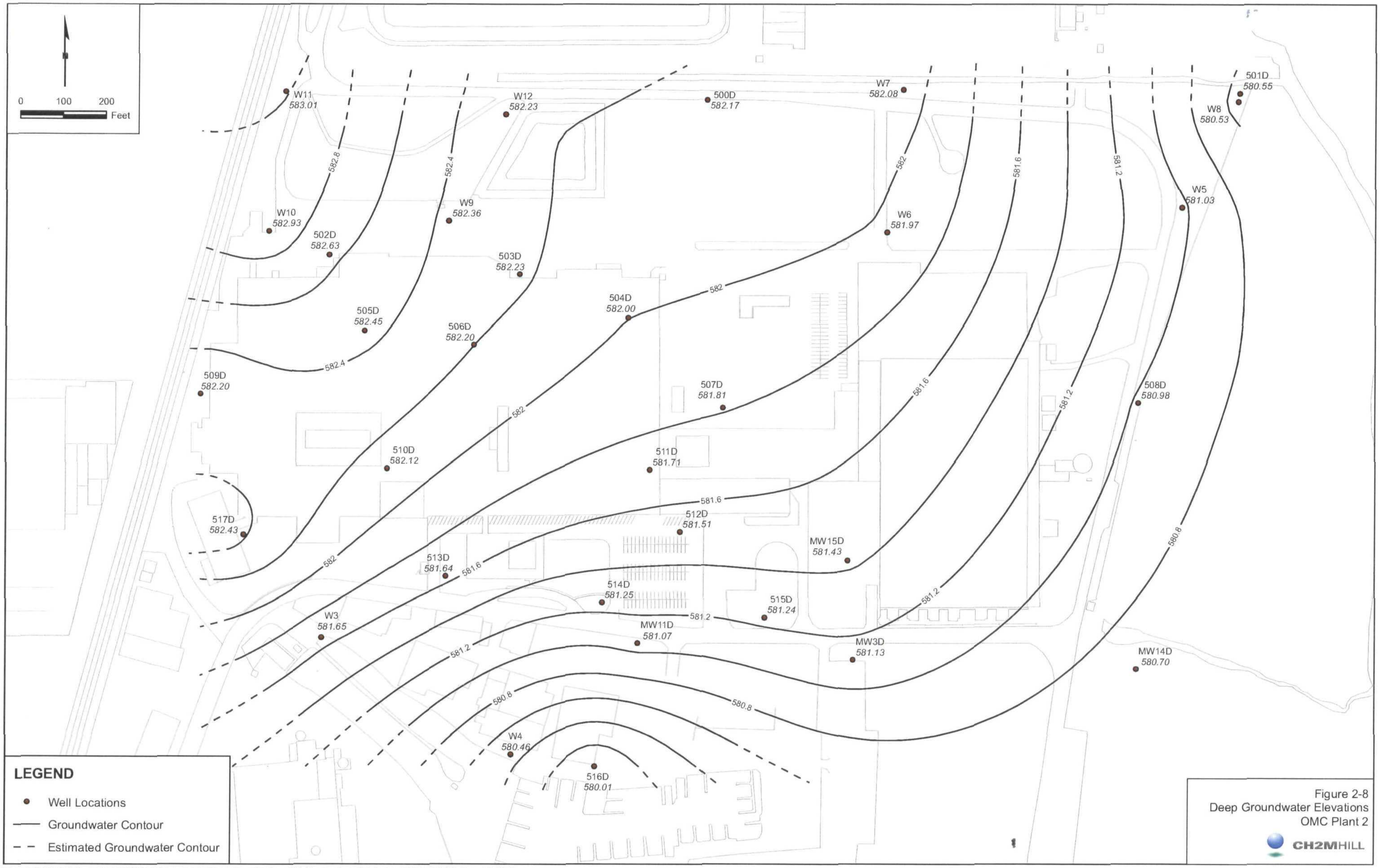

Figure 2-8
Deep Groundwater Elevations
OMC Plant 2

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SECTION 3

Nature and Extent of Contamination

Several investigations have been conducted to evaluate the impacts of OMC Plant 2 on the surrounding environment. These investigations were conducted to either address specific concerns (e.g., USTs or the CVOC plume) or were limited in scope and do not individually provide a comprehensive model of the nature and extent of contamination. In order to take advantage of the existing data, a site-specific database was developed during the planning of the field investigation and is discussed in the FSP. Based on OMC's historical chemical use and operational practices, and using RI and data collected previous to the RI, the potential impacts from OMC Plant 2 operations has been evaluated based on the following chemical groups:

- Total CVOCs—the sum total of detected concentrations of 1,1,1-trichloroethane; 1,1-DCA; 1,2-DCA; 1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; TCE; tetrachloroethene (PCE); vinyl chloride; and chloroethane. The presence of these compounds would be indicative of the impacts related to solvent use at the plant.
- Total BTEX—the sum total of detected concentrations of benzene, toluene, ethylbenzene, and total xylenes. The presence of these compounds would be indicative of potential impacts from petroleum hydrocarbons (e.g., gasoline and oils).
- Total CPAHs—the sum total of detected concentrations of carcinogenic polynuclear aromatic hydrocarbons including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluroanthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The presence of these compounds would be indicative of heavier-end petroleum products (e.g., hydraulic oils, fuel oil).
- Total PCBs—the sum total of detected concentrations of the different PCB aroclors.

The presence of contamination within the building materials, soil, groundwater, soil gas, and indoor air are discussed below.

3.1 Building Investigation

The OMC Plant 2 building materials were sampled to evaluate material handling and disposal options. During removal activities conducted by USEPA, PCB contamination was identified in the old die cast, parts storage, and metal working areas. Building materials were grouped and sampled according to surface material porosity as defined in 40 CFR 761.

3.1.1 Nonporous Surfaces—Metal Structures and Piping

Wipe samples for PCB analysis were collected from metal structures, piping, and other nonporous surfaces (defined within 40 CFR 761.3 as a smooth, unpainted solid surface that limits penetration of liquid containing PCBs beyond the immediate surface) to determine the type of thermal treatment, disposal, or decontamination that may be required if contaminated (i.e., above 10 µg/100 cm^2). Sample locations and results are shown in Figure 3-1 with the prefix, "NPW" for "nonporous wipe sample."

Forty-nine wipe samples were collected from nonporous surfaces in the old die cast, parts storage, and metal working areas (Figure 3-1) and analyzed for PCBs. An additional 15 wipe samples for PCB analysis were collected from the trim building and new die cast area. Photographs of the materials sampled, observations during sample collection, and a description of sample collection procedures is presented in Appendix B.

Old Die Cast Area

Seven wipe samples (NPW-017 through NPW-023) were collected from the old die cast area (Figure 3-1). Concentrations of PCBs detected range from 3.9 to 200 µg/100 cm^2. The highest concentrations of PCBs were detected in NPW-017 (200 µg/100 cm^2) on a metal wall support at the northern edge of the area and in NPW-023 (150 µg/100 cm^2) on a metal overhead catwalk at the southern edge of the area. Three samples NPW-022, NPW-021, and NPW-018 had concentrations of PCBs less than 100 µg/100 cm^2 but greater than 10 µg/100 cm^2. PCBs were detected in the remaining two samples, NPW-019 and NPW-020, at concentrations less than 10 µg/100 cm^2.

Parts Storage Area

Ten wipe samples were collected from nonporous materials in the parts storage area. Concentrations of PCBs detected range from 16 µg/100 cm^2 (NPW-024) to 600 µg/100 cm^2 (NPW-048). Concentrations of PCBs exceeding 100 µg/100 cm^2 were detected at NPW-048 (600 µg/100 cm^2) on a 1-inch-diameter overhead pipe, NPW-016 (540 µg/100 cm^2) on an 8-inch-diameter overhead pipe, NPW-027 (430 µg/100 cm^2) on a 4-inch-diameter overhead pipe, and NPW-028 (220 µg/100 cm^2) east of NPW-027 on the same 4-inch-diameter overhead pipe. The 600 µg/100 cm^2 of PCBs detected at NPW-048 was the highest concentration of PCBs detected in the building on a nonporous surface. Concentrations of PCBs greater than 10 µg/100 cm^2 and less than 100 µg/100 cm^2 were detected in the remaining seven wipe samples collected from nonporous materials in the parts storage area (NPW-015, NPW-024, NPW-025, NPW-045, NPW-046, and NPW-047).

Metal Working Area

Thirty-one wipe samples were collected from nonporous materials in the metal working area. Concentrations of PCBs detected range from 15 µg/100 cm^2 (NPW-011) to 350 µg/100 cm^2 (NPW-010). Concentrations of PCBs exceeding 100 µg/100 cm^2 were detected at 13 of the 31 sample locations. Concentrations of PCBs greater than 10 µg/100 cm^2 and less than 100 µg/100 cm^2 were detected in the remaining 18 wipe samples collected from nonporous materials in the metal working area (Figure 3-1).

Trim Building

Five wipe samples (NPW-066 through NPW-070) were collected from nonporous materials in the trim building. Collecting wipe samples from the trim building was not a component of the original building investigation; however, wipe samples from the trim building were added because concentrations of PCBs in nonporous wipe samples collected from the eastern edge of the metal working area exceed 10 µg/100 cm^2.

Concentrations of PCBs detected in the five samples ranged from 19 μg/100 cm^2 (NPW-066) to 85 μg/100 cm^2 (NPW-068) as indicated on Figure 3-1.

New Die Cast Area

Ten wipe samples (NPW-071 through NPW-080) were collected from nonporous materials in the new die cast area. Because materials containing PCBs were not reportedly used in the new die cast area, collecting wipe samples from the new die cast area was not a component of the original building investigation. Wipe samples from the new die cast area were added because concentrations of PCBs in nonporous wipe samples collected from the eastern edge of the metal working area exceed 10 μg/100 cm^2.

Concentrations of PCBs detected in the new die cast area range from 0.71 μg/100 cm^2 to 17 μg/100 cm^2. Due to the high ceiling in the new die cast area, wipe samples were not collected from nonporous surfaces near the ceiling. Wipe samples from the new die cast area were collected from a maximum height of 30 feet due to equipment limitations.

3.1.2 Porous Floor Surfaces

Core samples were collected from concrete floors and analyzed for PCBs to determine the depth to which PCBs may have penetrated into the porous floor materials, the disposal requirements for the concrete, and the potential for residual PCBs and metals to leach from the concrete. Figure 3-2 includes the core sample locations with the prefix "CB." Note that "total PCB" concentrations are plotted on this figure, but that Aroclor 1248 is the only PCB isomer detected within the concrete cores. Unless otherwise noted, concrete samples were collected from the top of the concrete floor to a depth of 4 inches.

Concrete samples from select locations were submitted to be analyzed for metals and using the Synthetic Precipitation Leaching Procedure (SPLP). Core samples were collected from the chemical storage building, the old die cast area, the parts storage area, the metal working area, the new die cast area, and the triax building floor (Figure 3-2). Photographs of the materials sampled, observations during sample collection, and a description of sample collection procedures is presented in Appendix B.

Chemical Storage Building

Two concrete samples were collected from one concrete core location (CB-021) in the chemical storage building (Figure 3-2). After the location was cored and the core was removed, a plastic liner was observed 4 inches below the top of the concrete floor. Beneath the liner, the concrete was visibly stained purple. Based on these observations, two concrete samples were collected for PCB analysis, one from 0 to 4 inches and a second from 4 to 5 inches below the top of the concrete floor. PCB concentrations were reported as 6.6 milligrams per kilogram (mg/kg) in the sample collected from the top 4 inches and at 280 mg/kg in the 4- to 5-inch depth sample. The PCB concentrations in CB-021 correlate with the purple staining observed during concrete coring.

Old Die Cast Area

Six concrete core samples were collected from five locations in the old die cast area. PCB concentrations in concrete core samples range from 1.4 to 2,100 mg/kg. At some locations, the concrete cuttings and cores were visibly stained purple. Purple color was observed during coring activities at CB-001 (0.3 to 0.6 foot [520 mg/kg]), CB-009 (1,400 mg/kg), CB-014 (240 mg/kg), and CB-018 (2,100 mg/kg). No purple staining was observed at CB-013 (1.4 mg/kg). At some coring locations in the old die cast area, the former concrete floor surface had been covered with an additional 1 to 3 inches of new concrete.

Based on PCB analytical results, some correlation exists in the old die cast area between visual purple staining on the concrete floor samples and elevated PCB concentrations.

Parts Storage Area

Six concrete core samples were collected from five locations in the parts storage area (Figure 3-2). PCB concentrations in core samples collected from the parts storage area floor range from 2.7 to 970 mg/kg. Sample CB-022 contained the highest concentration of PCBs (970 mg/kg) and was collected near a transformer in a hallway south of the main parts storage area. Purple staining was observed on concrete cores collected from CB-002, CB-015, and CB-022. Contrary to other site data, the purple staining observed in core samples CB-002 and CB-015 does not correlate with the relatively low PCB concentrations detected in the samples.

Metal Working Area

Ten concrete core samples were collected from 10 locations in the metal working area. PCB concentrations in core samples collected from the metal working area range from 0.31 mg/kg at CB-011 to 35 mg/kg at CB-003. Purple staining was observed on concrete cores collected at CB-003 and CB-012. No correlation between PCB concentrations in concrete samples collected from CB-003 (35 mg/kg) and CB-012 (92 mg/kg) and the purple staining observed at these locations is evident. In general, PCB concentrations were higher near the northern edge of the metal working area than the samples collected from the central and southern portions.

New Die Cast Area

One concrete core sample (CB-006) was collected in the northwest portion of the new die cast area. The sample location was selected to coincide with the location of a wipe sample collected during USEPA removal activities. PCB concentrations in CB-006 are 0.64 mg/kg. No purple staining was observed at CB-006.

Triax Building Floor

Four concrete floor wipe samples were collected from four locations in the triax building (Figure 3-2). The wipe samples were collected as a preliminary screening of the triax building for possible reuse as a wastewater treatment building for the WCP Superfund site. PCB concentrations in the four samples were PW-062 (26 μg/100 cm^2), PW-063 (6.8 μg/100 cm^2), PW-064 (10 μg/100 cm^2), and PW-065 (16 μg/100 cm^2).

Additional wipe sampling in the triax building was performed by CRA in August 2005 as part of the groundwater treatment plant design for WCP. Two of the five samples collected from the floor or the floor/wall interface within the triax building contained detectable levels of PCBs (5.6 and 19 μg/100 cm^2). The wipe results from the CRA investigation are included in Appendix D.

3.1.3 Porous Surfaces Other Than Floors

Wipe samples were collected from porous surfaces (defined within 40 CFR 761.3 as "...any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal;..."), such as concrete block walls, painted metal walls, painted piping, and painted girders. Wipe sample locations of these porous surfaces (other than floors) are shown on Figure 3-3 with the prefix "PW." The wipe samples were analyzed for PCBs, and the results were evaluated to determine appropriate handling and disposal of porous building materials. Photographs of the materials sampled, observations during sample collection, and a description of sample collection procedures is presented in Appendix B.

Old Die Cast Area

Six wipe samples were collected from porous surfaces in the old die cast area (Figure 3-3). PCB concentrations ranged from 5.5 to 170 µg/100 cm^2. The highest concentrations of PCBs detected, 170 µg/100 cm^2 at PW-061 and 150 µg/100 cm^2 at PW-041, were of painted overhead piping near the southern end of the old die cast area. Wipe samples collected from PW-060 and PW-022 contained PCBs at concentrations of 14 and 15 µg/100 cm^2, respectively, both exceeding the 10 µg/100 cm^2 Toxic Substance Control Act (TSCA) surface criteria established in 40 CFR 761. Wipe samples collected at PW-040 and PW-039 contained PCBs at concentrations of 5.5 and 9.4 µg/100 cm^2, respectively, below the TSCA criteria for PCBs on porous surfaces.

Because PCB concentrations exceeded the 10 µg/100 cm^2 TSCA criteria for porous surfaces in the old die cast area, paint chip samples were collected to determine disposal requirements for the materials. Paint chip samples were collected from the materials at PW-041 and PW-061. PCB concentrations in the paint chip samples were 600 mg/kg at PW-041 and 810 mg/kg at PW-061. At both locations, the concentrations of PCBs in the paint chip samples were higher than the concentration of PCBs in the wipe sample and exceeded the 50 mg/kg limit for disposal as a non-TSCA waste.

Parts Storage Area

Eleven wipe samples were collected from porous surface locations within the parts storage area (Figure 3-3). Concentrations of PCBs detected on porous surfaces in the parts storage area range from <0.01 to 750 µg/100 cm^2. The highest concentrations of PCBs were detected on a concrete wall at PW-020 (750 µg/100 cm^2) and a light fixture at PW-025 (710 µg/100 cm^2). The PCBs detected at PW-020 are located approximately 100 feet west of PW-019, where PCBs were not detected. PCB concentrations less than 10 µg/100 cm^2 were detected at PW-019 (<0.01 µg/100 cm^2), PW-038 (4.1 µg/100 cm^2), and PW-058 (5.7 µg/100 cm^2).

Concrete and paint chip samples were collected from select locations in the parts storage area, where PCB porous media wipe concentrations exceeded 10 µg/100 cm^2, to determine disposal requirements for the material. Concrete chip samples were collected from PW-020 and PW-059 and paint chip samples were collected from PW-023, PW-025, PW-042, and PW-043. PCB paint/concrete chip concentrations versus porous wipe concentrations for the same locations are as follows:

Station Location	Total PCB Wipe Sample ("PW" Porous Surface) Concentration (µg/100 cm^2)	Corresponding Total PCB Paint/Concrete Chip Sample Concentration (mg/kg)
PW-020	750	99
PW-023	250	730
PW-025	710	13
PW-042	140	190
PW-043	98	92
PW-059	200	64

There is no apparent correlation between porous surface material and PCB concentrations in wipe and/or paint and concrete chip samples in the parts storage area.

Metal Working Area

Forty-three wipe samples for PCBs were collected from porous surfaces in the metal working area. Concentrations of PCBs detected in wipe samples collected from porous surfaces range from <0.01 to 540 µg/100 cm^2. PCB concentrations detected in the metal working area are summarized on Figure 3-3. PCB concentrations above 10 µg/100 cm^2 were detected in the southern and western portions of the metal working area. Wipe samples collected from porous surfaces in the northeastern portion of the metal working area did not contain PCB concentrations greater than 10 µg/100 cm^2. The northeastern portion of the metal working area appeared to have been painted recently. The recent paint or preparation of the surfaces for painting may have resulted in the low PCB concentrations detected in the wipe samples. No paint chip samples were collected from this portion of the metal working area.

Paint chip samples were collected from locations PW-015 and PW-026 within the metal working area to determine disposal requirements for the materials because wipe samples from porous surfaces contained concentrations of PCBs greater than 10 µg/100 cm^2. Paint chip detections versus porous wipe sample concentrations for these two locations are as follows:

Station Location	Total PCB Wipe Sample ("PW" Porous Surface) Concentration (µg/100 cm^2)	Corresponding Total PCB Paint Chip Sample Concentration (mg/kg)
PW-015	47	190
PW-026	540	11

No apparent correlation exists between PCB concentrations in wipe samples and paint chip samples in the metal working area.

Triax Building

Additional wipe sampling from the walls, roof truss members, and the flat roof of the internal buildouts within the triax building was also performed by CRA in August 2005. Four of the 14 samples collected from within the triax building contained detectable levels of PCBs ranging from 4.8 to 16 μg/100 cm^2. The results indicate that the PCBs were detected on the horizontal surfaces, roof truss members, and the flat roof of the internal buildouts. PCBs were not detected on the vertical surfaces. The wipe results from the CRA investigation are included in Appendix D.

3.1.4 Sewer Testing

The investigation of the storm and sanitary sewers included removing manhole covers to visually inspect manholes west of the corporate building to the triax building and inspecting the harbor area on the Larsen Marine Services property to determine potential sewer outfall points (Figure 3-4).

The manholes were opened and visually inspected to determine inflow and outflow directions. Piping was followed to the next manhole using the results of the visual inspection. Manholes were found to contain varying amounts of standing water and large volumes of sediment. The inspection results indicated that storm sewers near the corporate building drain to the east to a manhole located immediately north of Seahorse Drive and south of the triax building. From this manhole, a pipe leading south was observed and was found to discharge to Waukegan Harbor on the Larsen Marine Services property.

After determining the final outfall point of the storm sewers, a manhole located west of the corporate building and immediately east of the truck scale was inspected. Historical investigation reports indicate the sewer pipe was plugged south of this location. This plug, if present, would prevent site drainage from entering the storm sewer system with final outfall to Waukegan Harbor. After visual inspections of the manhole were completed, approximately 80 gallons of a water and tracer dye mixture were put into the manhole to determine if the plug reportedly installed downgradient of the area was effective. Two hours after adding the dye solution in the manhole, no dye was observed in the harbor or other downgradient manholes. Based on the testing, the plugging of the sewer pipe south of the test location appears to effectively prevent discharge from this storm sewer line directly to Waukegan Harbor.

3.1.5 Building Investigation Conclusion

This section presents conclusions of the building materials investigation. Conclusions related to the building materials are presented separately because the objectives of the sampling were only to evaluate disposal options and not to determine the extent of contamination.

Nonporous Surface Investigation Conclusions

Analytical results from wipe sampling indicate nonporous metal surfaces with concentrations of PCBs exceeding the 10 μg/100 cm^2 TSCA disposal criteria are present throughout the OMC Plant 2 building, with the exception of the northeast corner of the metal working area where no nonporous surfaces were present. In addition, nonporous surfaces in the old die cast, parts storage, and metal working areas have concentrations of PCBs exceeding the second-tier TSCA disposal criteria of 100 µg/100 cm².

PCBs were detected in nonporous samples throughout all sampled building areas, but at wide-ranging concentrations. The general trend of detected PCBs on nonporous surfaces indicates the highest concentrations in the old die cast and parts storage areas with concentrations decreasing outward from this zone. A low percentage (about 14 percent) of wipe samples contained concentrations of PCBs below the TSCA disposal criteria of 10 µg/100 cm².

The large volume of contaminated nonporous materials in the building coupled with the wide range of concentrations within building areas makes delineating areas of nonporous materials requiring special handling unfeasible. As a result, for future demolition and/or disposal purposes, all nonporous building materials will be considered to require special handling and/or disposal under TSCA regulations.

Porous Floor Investigation Conclusions

Concrete samples collected from concrete floors within the OMC Plant 2 building indicate the presence of PCBs at concentrations exceeding the 50 mg/kg TSCA disposal criteria established in 40 CFR 761. The distribution of PCBs in concrete generally coincides with wipe sample results in the old die cast and parts storage areas, which have the highest detected concentrations that decrease outward. Concentrations of PCBs exceeding 50 mg/kg appear to be limited to concrete floors in the old die cast and parts storage areas or to approximately 25 percent of the total building floor area. Concentrations of PCBs below 50 mg/kg were detected in concrete floors in all areas of the plant. Some correlation exists between purple staining observed during coring activities and elevated PCB concentrations in the concrete floors in the old die cast and parts storage areas.

Because PCBs were detected in samples of the concrete floors from all areas of the plant, the potential exists for PCBs to become mobilized as a component of dust generated during any activities disturbing the concrete floors. For disposal purposes, it is assumed that all concrete from the old die cast and parts storage areas will require disposal in a RCRA Subtitle C hazardous waste landfill or a TSCA chemical waste landfill per 40 CFR 761.

Management of concrete located outside the old die cast and parts storage areas will require controls to prevent exposure to PCBs in concrete dust generated during removal activities. Concrete from outside the old die cast and parts storage areas with PCB concentrations less than 50 mg/kg can be disposed of in a RCRA Subtitle D landfill or evaluated for onsite disposal.

Porous Surfaces Other Than Floors Investigation

Wipe sample results for porous surfaces other than floors indicate PCBs were detected in the old die cast, parts storage, and metal working areas of the OMC Plant 2 building. Paint chip and concrete samples were collected to determine disposal requirements for the materials where concentrations greater than 10 µg/100 cm² were detected in wipe samples from porous surfaces. Concentrations of PCBs exceed the TSCA disposal criteria for solids of 50 mg/kg in eight of the ten concrete and paint chip samples.

Wipe samples collected from the white painted room in the northeast portion of the metal working area did not contain PCB concentrations greater than 10 µg/100 cm²; however, PCBs were detected in the porous materials in this area. For disposal purposes, the porous materials from this area will be considered uncontaminated and disposed of in a RCRA Subtitle D solid waste landfill or evaluated for onsite disposal. Any activities in this area that disturb the porous surfaces may mobilize the PCBs, resulting in a potential exposure hazard.

PCB contamination exceeding the 50 mg/kg TSCA disposal criteria was detected in eight of ten samples of the porous OMC Plant 2 building materials. For disposal purposes, it is assumed that 80 percent of the porous materials in the building will exceed the 50 mg/kg TSCA disposal criteria. Materials containing concentrations of PCBs greater than 50 mg/kg will be disposed of in a RCRA Subtitle C hazardous waste landfill or a TSCA chemical waste landfill.

3.2 Membrane Interface Probe Investigation

A membrane interface probe (MIP) investigation including 95 locations on the OMC Plant 2 site and surrounding properties was conducted in accordance with the FSP. The specific objectives of the investigation were to:

- Define the nature and horizontal and vertical extent of the VOCs in soil and groundwater using real-time measurements, specifically around previously identified hot spots, beneath the plant and to the south of the plant.
- Identify groundwater monitoring well locations to monitor the groundwater plume.
- Determine if nonaqueous phase liquid (NAPL) exists beneath the high concentration areas and potential source areas identified in previous investigations.

The MIP system provides real-time responses to VOC contamination in soil and groundwater. Based on historical data, the MIP was equipped with three detectors including a flame ionization detector (FID), a photoionization detector (PID) and an electron capture device (ECD). In general, the responses of the PID and ECD were best suited to indicate the presence of CVOCs. The FID response was useful for detecting BTEX constituents but was susceptible to elevated readings due to the occurrence of methane in the subsurface. The FID was able to detect CVOCs when concentrations of CVOCs were high enough to be combustible as at MIP-027, where dense nonaqueous phase liquid (DNAPL) was encountered. Temperature and soil conductivity were also recorded with depth at each location. A description of the activities (e.g., selection of locations and procedures) and the plots of the FID, PID, and ECD responses for each location are provided in the *Membrane Interface Probe Investigation* technical memorandum in Appendix B.

Because the MIP detectors provide a relative response value (in microvolts [µV]) and not a direct concentration of VOCs in the soil or groundwater, confirmation samples representing both high and low concentration areas were collected from approximately 10 percent of the MIP locations and submitted for laboratory analysis. For use in field decision making, the results of the confirmation samples and the MIP responses were compared to provide the relative magnitude of VOC concentrations corresponding to the baseline, maximum and intermediate MIP responses.

The analytical results from confirmation samples indicate the MIP system responded to VOC concentrations in groundwater as low as 4 micrograms per liter (μg/L; MIP-026/SO-046), meeting the project requirements to define the extent of contamination. An upper response limit for the MIP system was also determined based on analytical results from confirmation samples. The maximum MIP detector response of 8.0×10^6 μV for the ECD and 2.2×10^7 μV for the PID was recorded at total VOC concentration levels (as identified in laboratory samples) of approximately 5,000 μg/kg or 5,000 μg/L (parts per billion [ppb]). The MIP locations where the maximum response level was recorded for at least one of the MIP detectors are indicated on Figure 3-8.

3.2.1 Results

The results of the PID and ECD responses are presented in Figures 3-5 and 3-6, respectively. The PID and/or ECD responses above 7.5×10^5 μV have been highlighted to delineate the areas of elevated CVOC concentrations. A three-dimensional view of the ECD responses is presented in Figure 3-7.

Based on MIP detector response and analytical results of the confirmation samples, five primary areas of CVOC contamination were identified, as indicated on Figure 3-8, including:

- Area A: Beneath the western portion of the trim and triax buildings, including areas immediately west of the trim and triax building and areas outside of the plant south of the triax building (MIP-047, MIP-048, MIP-069, MIP-054, MIP-059).
- Area B: Area near the chip wringer on the north side of the building (MIP-001, MIP-085).
- Area C: Eastern portion of the former metal working area beneath the building (MIP-021) and the open area immediately outside the building to the east (MIP-027) and north of the trim building.
- Area D: Northern portion of the old die cast area (MIP-014, MIP-015, MIP-079).
- Area E: Area southwest of the main plant (MIP-043).

PID and/or ECD responses above baseline levels were recorded at MIP locations outside these five areas; however, the level of the response was orders of magnitude less than the responses within the five primary areas.

Area A–West End of the Trim and Triax Buildings

Elevated PID and ECD readings were recorded at MIP locations beneath the western portion of the trim and triax buildings, extending slightly to the west of the triax building and south beneath the parking lot area outside the triax building and onto the Larsen Marine Services property. Elevated readings, greater than 1.0×10^6 μV, were detected at MIP-039 (trim building), MIP-047, MIP-048 (triax building), MIP-069, MIP-054, and MIP-059 (south parking lot area). In general, elevated PID and ECD readings from locations in the building (MIP-039, MIP-047, and MIP-048) were detected from depths of approximately 2 feet to the top of the till surface at approximately 30 feet (inside the building). These elevated responses throughout the entire soil column indicate that the source of the Area A contaminants may be the degreasers formerly located in western end of the trim building (see Figure 1-3).

The elevated detector readings from locations adjacent to and from beneath the parking lot area south of the triax building (MIP-054, MIP-059, and MIP-069) were recorded at slightly greater depths and also extended vertically to the top of the till (i.e., from approximately 10 to 26 feet below ground surface [bgs]). Elevated PID and ECD readings were also recorded south across the parking lot area in MIP-070, MIP-068, and to a lesser extent MIP-056, MIP-053, and onto the Larsen Marine Services property (MIP-063). MIP locations to the east, west, and north of this area (MIP-037, MIP-045, MIP-046, MIP-071, or MIP-077) did not exhibit elevated PID or ECD readings and serve to define the contaminated area.

Based on the MIP readings recorded in this area, a dissolved CVOC plume extends from approximately the northwest corner of the triax building south-southwest onto the Larsen Marine Services property. This plume is likely related to TCE used in the solvent-vapor parts degreaser formerly located in the west end of the trim building.

Area B–Chip Wringer Area

The chip wringer is located on the north side of the building, in the western portion of the metal working area. In addition to the chip wringer itself, this area was specifically targeted to investigate the potential impacts of a 4,000-gallon TCE UST that was reportedly located in this area of the plant. The investigation included three locations, two inside (MIP-084 and MIP-085) and one immediately outside (MIP-010) of the chip wringer room. Additional locations were located outside the room to examine potential downgradient impacts from solvent use in this area.

Elevated PID and ECD readings were recorded at MIP-085, south of the chip wringer near the base of the aquifer (21 to 28 feet bgs). Low to moderate level PID and ECD readings were recorded at MIP-019 located 160 feet southeast of MIP-085 from a depth of approximately 16 feet to the top of the till at 32 feet. No elevated PID or ECD readings were recorded north (MIP-010), west (MIP-084), east (MIP-011), or south (MIP-018) of the chip wringer. The limited extent of the elevated PID and ECD readings indicate CVOC contamination is present immediately beneath the chip wringer and extends approximately 200 feet to the southeast.

Area C–Eastern Metal Working Area

This area includes the eastern-most portion of the metal working area and the adjacent open area outside the building. Elevated PID and ECD readings were recorded beneath the building at MIP-021 and MIP-026 and outside the building at MIP-022, MIP-027, and MIP-089 (Figure 3-4). The elevated readings beneath the building at MIP-021 extended throughout the soil column, from approximately 2 to 30 feet bgs. At MIP-026, about 200 feet south, the elevated PID and ECD readings were recorded over two depth intervals, 2 to 6 feet bgs and approximately 15 to 23 feet bgs. The magnitude of the detector responses at MIP-026 were similar with the responses recorded for MIP-021. Groundwater grab samples collected at MIP-021 and MIP-026 confirm high VOC concentrations ranging from 48.5 μg/L in MIP-21 (the interval 29 to 33 feet bgs) to 34,600 μg/L in MIP-026 (the interval 13 to 17 feet bgs). No elevated PID or ECD readings were recorded at surrounding MIP locations inside the building including MIP-020, MIP-025, MIP-033 or MIP-034.

The investigation to delineate the contamination continued outside the building to the north (MIP-088 and MIP-089) and to the east (MIP-022 and MIP-27). PID and ECD detector response at MIP-088, north of MIP-021, was minimal. The MIP detector response at MIP-022 was similar in magnitude to that at MIP-021, indicating that the high-concentration VOC contamination extended to the east at depths of 10 to about 22 feet bgs. PID and ECD detector response at MIP-089 was slightly higher than at MIP-088, but was much less than the magnitude of the response at MIP-021 and MIP-022. No elevated PID or ECD readings were recorded at MIP locations to the east (MIP-090 and MIP-091), thus bounding the contaminated area.

Elevated PID, ECD, and FID readings at MIP-027 were recorded at the base of the aquifer from approximately 26.5 feet to the top of the till at 28.5 feet. Confirmation samples were collected at this location to determine if an NAPL was present. During confirmation sample collection from the base of MIP-027, a dark brown/black oily DNAPL was collected and analyzed. Analytical results indicate that the DNAPL is comprised of approximately 100 percent TCE. The additional investigation to delineate the extent of the DNAPL is discussed in Section 3.4.3.

MIP-035 was installed about 100 feet to the south of MIP-027. No elevated PID or ECD readings were recorded at this location. Because DNAPL migration is controlled largely by gravity, MIP-075 was performed at the point of the lowest till surface elevation in the vicinity of MIP-027. No DNAPL was detected at MIP-075 based on MIP response; in addition, no PID, ECD, or FID response above baseline was recorded.

Based on the limited number of MIP locations with elevated PID and ECD readings, the VOC contamination appears limited to a small area at the western edge of the courtyard and eastern end of the metal working area of the plant. Based on MIP response, the elevated VOCs in this area appear to be unrelated to the VOCs detected in the chip wringer and trim building areas.

Area D–Northern Portion of the Old Die Cast Area

The old die cast area refers to the western portion of the plant where die casting was historically performed prior to relocating the die cast operations to the newer eastern portion of the plant. Elevated PID and ECD readings were detected at MIP-014, MIP-015, and MIP-079 extending from approximately 25 feet bgs to the top of the till at 30 feet bgs. The elevated MIP detector response is potentially related to a former solvent degreasing pit in the area of MIP-014; however, no elevated PID or ECD readings were recorded in shallow soils or groundwater in the area. The magnitude of the detector responses at MIP-016 and MIP-017 are less than the detections at MIP-014 and MIP-015. Based on the detector responses at MIP-016 and MIP-017, the CVOC plume in the northern portion of the old die cast area is independent of the plume detected near the chip wringer area.

No elevated PID or ECD readings were recorded at MIP-013 (northwest of the elevated readings), MIP-029 and MIP-030 (south of the elevated readings), MIP-018 (east of the elevated readings), or MIP-007 and MIP-008 (north of the elevated readings). The lack of elevated readings at MIP locations surrounding MIP-014, MIP-015, MIP-016, MIP-017, and

MIP-079 defines the extent of the elevated readings. Based on the MIP response, the VOC plume extends approximately 400 feet east, but less than 200 feet south from MIP-014.

Area E–Southern Portion of the Old Die Cast Area

Elevated PID and ECD readings were recorded at MIP-043 at the southern end of the old die cast area. No elevated PID or ECD readings were recorded at MIP-030 (north of MIP-043), at MIP-073 (west of MIP-043), MIP-072 (east of MIP-043), or MIP-087 (south of MIP-043). A solvent degreaser pit historically located near MIP-043 may be the source of elevated MIP detector response readings in this area.

3.2.2 MIP Investigation Conclusions

The MIP effectively delineated the extent of VOCs in the subsurface at the OMC Plant 2 site. Samples collected from select MIP locations allowed correlation of MIP detector response to quantitative VOC concentrations. Based on analytical results from the correlation samples, the MIP had a lower detection limit of 4 μg/L and the detectors reached a maximum response at VOC concentrations of 5,000 μg/L.

Based on MIP results, five primary, independent, areas of VOC contamination were identified including the western portions of the trim and triax buildings, the chip wringer area, the eastern metal working area, the north end of the old die cast area, and the south end of the old die cast area. MIP points located between these five areas showed no detection of VOCs, indicating the areas are from individual sources and not part of one larger plume resulting from one source.

DNAPL was indicated by the detector response and confirmed by sample collection at MIP-027. Laboratory analytical results indicate the DNAPL is approximately 100 percent TCE. The responses from MIP points performed near MIP-027 were not indicative of DNAPL. The additional investigation to delineate the extent of the DNAPL is discussed in Section 3.4.3.

3.3 Soil Analytical Results

Soil samples were collected from the OMC Plant 2 site to:

- Define the nature and extent of contamination,
- Support the assessment of potential risk to human health and the environment, and
- Determine whether remedial actions are necessary.

The data reported from previous investigations at OMC Plant 2 provide a relatively well-defined picture of soil and sediment contamination outside the building. A limited and focused field investigation was conducted to fill in data gaps identified based on evaluation of existing data. The specific objectives of the limited soil investigation were to:

- Define the eastern contamination (CPAH and PCB) boundary of the former die cast UST/AST area located east of Plant 2.

- Characterize soils in the vicinity of the PCB AST area and parking lot areas north of Plant 2 (between the two containment cells) sufficiently to evaluate the potential for direct contact risk.
- Verify that soils in the uncovered grassy areas surrounding the corporate office buildings south of Plant 2 will not pose direct contact risk related to site-related contaminants.
- Determine contaminant concentrations in soil beneath the building at selected groundwater investigation locations.
- Collect soil property data to evaluate contaminant fate and transport and remedial technologies.

A description of the activities (e.g., selection of locations and procedures) for the soil sampling is provided in the *Soil and Sediment Investigation* technical memorandum in Appendix B. Soil samples were analyzed for VOCs, SVOCs, metals, and PCBs. In addition, selected samples were collected and analyzed for geotechnical parameters including total organic carbon (TOC), soil oxidant demand (SOD), bulk density, porosity, and grain size (see Table 2-1). The analytical results for the soil samples are provided in Appendix C.

Table 3-1 provides a summary of the compounds detected in soil, their concentration range, and the number of times each compound was detected. The TACO Tier 1 Remediation Objectives for Residential Properties for the direct contact pathway (soil ingestion and inhalation) and the soil component of the groundwater ingestion exposure route values (Class I aquifers) for the detected constituents are also provided in Table 3-1. The Tier 1 remediation objectives are presented for comparison purposes to identify the site-related compounds to be used to define the nature and extent of contamination at the site.

The frequency of detection and the comparison between the maximum concentration and the Tier 1 objectives verify that the main contributors to direct contact exposure include the PCBs and the CPAHs. Compounds from these chemical classes were the most frequently detected and were found at concentrations exceeding the Tier 1 Soil Remediation Objectives for the direct contact pathway. The concentrations of CPAHs and CVOC in the soil will also need to be addressed to reduce impacts to groundwater quality. Based on the frequency of detections of the CVOCs, the determination of the soil remediation goals will also need to consider the volatilization to air as an exposure pathway.

3.3.1 PCBs

Soil samples for PCB analysis were collected from beneath the OMC Plant 2, the PCB area north of the plant, the grassy areas south of the plant, areas west of the plant, and the former die cast UST area east of the plant. Soil samples were generally collected from the top 0.5 feet of soil and from the 2-foot interval above the water table. Figures 3-9 and 3-10 present analytical results for soil samples collected for PCB analysis from the surface soil (i.e., 0- to 0.5-foot interval) and the subsurface (i.e., depth interval greater than 0.5 foot), respectively.

Beneath the Plant

Seventeen subsurface soil samples for PCB analysis were collected from six sample locations beneath the OMC Plant 2 building. PCBs were detected in the uppermost soil samples collected in five of the six locations (SO-069, SO-070, SO-071, SO-081, and SO-082). PCB concentrations ranged from 110 micrograms per kilogram (µg/kg) at locations SO-069 and SO-071 (0 to 1.7 feet bgs and 4 to 5 feet bgs, respectively) to 16,000 µg/kg in a soil sample collected at SO-082 (4 to 5 feet bgs). The PCB concentrations decreased with depth, and only two of the deeper soil samples (8 to 8.7 feet) contained detectable levels of PCBs. The majority of the locations containing PCBs were beneath the old die cast area where wipe and concrete cores samples also indicated the presence of PCBs. The highest concentration (16,000 µg/kg at SO-082) was located beneath the portion of the older die cast area where 1.4 to 2,100 mg/kg of PCB were detected in the concrete core samples.

PCB Area North of the Plant

In the PCB area north of the plant, 73 soil samples were collected for PCB analysis from 36 soil sample locations. PCBs were detected in 34 of the surface soil samples collected from the 0- to 6-inch interval at concentrations ranging from 8.2 µg/kg (SO-027) to 880,000 µg/kg (SO-014). The analytical results indicate that the majority of the most contaminated soils appear to have been removed as part of OMC's remediation of the North Ditch/Crescent Ditch/Oval Lagoon Area and the Parking Lot Area. Three isolated samples (SO-001, SO-007, and SO-008) of 10 locations from this remediated area contained PCB concentrations exceeding 1,000 µg/kg (1 ppm), ranging from 1,000 to 3,500 µg/kg. The 1,000 µg/kg concentration is the Illinois TACO Tier 1 limit for PCBs in soil based on a direct contact exposure route (35 Illinois Administrative Code 742.510). The highest concentrations of PCBs in the surface soils were detected at SO-014 (880,000 µg/kg) and SO-015 (32,800 µg/kg) located along the northwestern building wall and may be related to former loading docks or UST areas.

The other area with surface soil samples exceeding the 1,000 µg/kg criteria is in the open area north of the trim building. Five of the samples collected from this area contained elevated concentrations of total PCBs (860 to 7,750 µg/kg). Three of the samples (SO-026, SO-032, and SO-034) contained total PCB concentrations greater than the Tier 1 limit of 1,000 µg/kg. The distribution of the elevated PCB concentrations is not indicative a contiguous source area related to the former PCB ASTs.

PCBs were detected in 28 samples collected from the soil interval above the water table (i.e., at depths greater than 0.5 foot) in the PCB area north of the plant. The PCB concentrations in the subsurface soils ranging from depths of 0.3 to 3 feet appear higher than in the surface soils with 14 locations containing PCB concentrations of or greater than 1,000 µg/kg. These elevated PCB concentrations were found in two locations (SO-001 and SO-006) in the vicinity of the West Containment Cell, along the building (8 of 9 samples exceeded 1,000 µg/kg), and in the open area north of the trim building (of 7 of 14 samples exceeded 1,000 µg/kg). The highest concentrations of PCBs in samples collected from above the water table were found at SO-014 (480,000 µg/kg in 1.5 to 2.0 feet) near the northwest corner of the building and at SO-025 (790,000 µg/kg in 2.2 to 2.5 feet) in the parking area just east of the PCB AST area.

Grassy Area South of the Plant

Sixteen samples (12 unsaturated and 4 saturated soil samples) for PCB analysis were collected from five soil sample and two geotech boring locations in the grassy area south of the plant. PCBs were not detected in any of the five surface soil samples (collected from the 0- to 6-inch interval).

Low levels of PCBs ranging from 31 to 1,862.9 µg/kg were detected from subsurface soil samples at three locations collected from depths between 0.4 and 3.8 feet. The highest concentration (1,862.9 µg/kg) was detected in the 2.1- to 2.4-foot interval from a location in the parking lot south of the triax building. The shallower soil sample (0.4 to 0.8 feet bgs) at this location contained 715 µg/kg of PCBs.

Areas West of the Plant

Three samples for PCB analysis were collected from one sample location in the unpaved gravel area north of the chemical storage building. PCBs were detected in SO-064 in the sample collected from 0 to 1 foot bgs at 9,400 µg/kg and 120 µg/kg in the deeper sample (4.6 to 6 feet bgs). The source of the PCBs at this location is not unknown, as no USTs were reported located in this area.

Former Die Cast UST Area East of the Plant

Eighteen samples for PCB analysis were collected from 10 soil sample locations in the former die cast UST area east of the plant. PCBs were detected in eight samples collected from 0 to 0.5 foot bgs. Concentrations of PCBs in the surface soil samples (0 to 0.5 foot) ranged from 62 to 49,500 µg/kg. Concentrations of PCBs in samples collected from 0 to 0.5 foot were highest at SO-043 (49,500 µg/kg) and SO-042 (12,900 µg/kg) near the northeast corner of the site in the vicinity of the East Containment Cell.

PCBs were detected in nine unsaturated soil samples collected from the interval above the water table (i.e., depths greater than 0.5 foot). Concentrations of PCBs in samples collected from depths between 0.6 and 3 feet ranged from 134 to 33,750 µg/kg. The highest concentrations of PCBs in the subsurface soil samples were detected at SO-043 (33,750 µg/kg) and SO-042 (31,200 µg/kg).

Four soil locations (SO-037 to SO-040) along the eastern fence line and two in the southeastern corner of the site (SO-035 and SO-036) were sampled to define the lateral extent of previously identified PCB contamination related to the former die cast UST/AST area east of the plant. The historical PCB data indicate that elevated PCB concentrations exceeding 1,000 µg/kg exist in the near surface soil (samples collected from the 0- to 2-foot interval). The results from the six locations indicate that concentrations generally decrease toward the fence line. Two of the surface soil locations (SO-037 and SO-040) contained total PCB concentrations slightly greater than 1,000 µg/kg criteria (1,800 and 1,097 µg/kg, respectively). Concentrations in the deeper soils (1 to 2 feet bgs) contain higher concentrations of PCBs with five of the six samples containing PCB concentrations (1,005 to 6,340 µg/kg) exceeding the 1,000 µg/kg criteria.

Four additional borings (SO-041 to SO-044) were sampled to the north of the former die cast UST/AST area following the north-south access road. Three of the surface soil samples contained elevated total PCB concentration in the surface soil (4,010 to 49,500 µg/kg). The subsurface soil samples at the same locations also contained elevated PCB concentrations (3,580 to 33,750 µg/kg). The data are consistent with the findings from the City of Waukegan's investigation of the dune area.

The City of Waukegan conducted an environmental site investigation of the lakefront study area in July and October 2004 and May 2005. Composite samples for PCB analyses were collected the 0- to 3-foot and 5- to 8-foot soil intervals from 47 locations to delineate the extent of PCB contamination in the dune area. The City's investigation report is provided in Appendix A, and the results are presented in Figure 3-11. PCBs were detected over most of the dune area at depths of up to 8 feet. Elevated concentrations of PCBs (greater than 1 mg/kg) were in the northern portion of the study area, especially east of the East Containment Cell. This area south of the North Ditch and east of the containment cell include three locations (S-34, S-25, and S-23) containing PCB concentrations greater than 100,000 mg/kg. The City's investigation results estimate that there is approximately 3,300 cubic yards of material with PCB concentrations greater than 10 mg/kg in this area.

3.3.2 VOCs

Soil samples for VOC analysis were collected from beneath the building, the PCB area north of the plant, the grassy area south of the plant, the area west of the plant, and the former die cast UST area east of the plant. Soil samples were collected from 0 to 0.5 foot bgs and from the 2-foot interval above the water table. The primary VOCs detected include TCE, cis-1,2-DCE, 1,1-DCE, chloroethane, and vinyl chloride; however, lower concentrations of 1,1,1-TCA, 1,1-DCA, 1,2-DCA, trans-1,2-DCE, carbon tetrachloride, and PCE were detected (see Table 3-1). Total CVOC concentrations were used for data evaluation. Figures 3-12 and 3-13 present sample locations and analytical results for total CVOCs in soils collected from 0 to 0.5 foot bgs and greater than 0.5 foot bgs, respectively.

Based on the historic soils data and the oils used in the manufacturing operations, the distribution of BTEX compounds were thought to be indicative of site-related impacts. BTEX compounds were detected in only four of the soil surface samples (9 to 68 µg/kg) and four of the subsurface soil samples (4 to 1,610 µg/kg) collected across the site. The BTEX concentrations in soils are significantly lower in magnitude and less laterally extensive than CVOC concentrations. Figures 3-14 and 3-15 present sample locations and analytical results for BTEX contaminants in soils collected from the surface soil (0 to 0.5 foot bgs) and subsurface soil (depths ranging from 0.7 to 8.7 feet), respectively. BTEX is not discussed further below because of the relatively few samples with detections.

Beneath the Plant

Twenty two soil samples were collected from 11 sample locations beneath the OMC Plant 2 building and analyzed for VOCs. VOCs were detected in SO-069 (8 µg/kg) from 0 to 1.7 feet bgs. A sampling interval greater than 0 to 0.5 foot was necessary due to the thickness of backfill below the concrete building floor.

VOCs were detected in five samples collected beneath the building from depths ranging from 1.7 to 10.5 feet (Figure 3-13). Concentrations of total CVOCs detected range from 40 µg/kg (SO-069) to 1,348,000 µg/kg (SO-081). CVOC detections were limited to the eastern portion of the metal working area and west of the trim and triax buildings. The location of the highest CVOC concentrations in the subsurface soil samples correlated with three of the five MIP areas (Areas A, B, and C) beneath the building (Figure 3-8).

PCB Area North of the Plant

Seventy five soil samples were collected from 38 sample locations in the PCB area north of the building and analyzed for VOCs. CVOCs were detected in nine of the surface soil samples with total detected CVOC concentrations ranging from 2 µg/kg (SO-017) to 173 µg/kg (SO-020). The detections of CVOC in the surface soil samples were found primarily along the exterior of the north building wall and the western portion of the former PCB AST area. The samples from these locations also contained PCBs (53 to 56,800 µg/kg). Unlike the distribution of PCBs, the distribution of CVOCs appears limited and does not extend to the northern access road, most of the northern parking lot area, or the open area north of the trim building.

CVOCs were detected in 12 of the subsurface soil samples collected from depths between 0.3 and 5.5 feet in the PCB area north of the plant. Total CVOC concentrations range from 3 µg/kg (SO-012) to 84,170 µg/kg (SO-062). The extent of CVOC detections in the subsurface soils is generally similar to that of CVOCs in the surface soil. The area with the highest concentration of CVOCS (SO-62 with 84,170 µg/kg) is consistent with the MIP Area B related to the chip wringer room. In addition, the low levels of detected CVOC concentrations at SO-20 (666 µg/kg), SO-026 (163 µg/kg), and SO-057 (12 µg/kg) are also consistent with the conclusion relative to MIP Area C that the bulk of CVOC contamination in this area is deeper.

Grassy Area South of the Plant

Sixteen samples (12 unsaturated and 4 saturated soil samples) for VOC analysis were collected from five soil samples and two geotech borings in the grassy area south of the plant and analyzed for VOCs. CVOCs were only detected in two of the five surface soil samples SO-050 (38 µg/kg) and SO-052 (32 µg/kg).

CVOCs were detected in six subsurface soil samples collected from depths ranging from 0.6 to 3.8 feet in the grassy area south of the plant. CVOC concentrations range from 7 µg/kg (SO-054) to 775 µg/kg (SO-074).

Area West of the Plant

Four samples from two sample locations were collected in the onsite area west of the plant. The area is a narrow strip of land between the western plant wall and the western property fence used primarily for storage and for access to western portions of the property. This area is currently used for boat and trailer storage. Investigation activities in this area were restricted due to the North Shore Sanitary District high-pressure force main running south to north beneath the western property fence.

CVOCs were not detected in surface soil samples but were detected in the subsurface soil in SO-046 at 12 µg/kg from 1.2 to 2.2 feet bgs. The limited extent of the CVOC contamination and the low concentrations indicate the CVOCs at SO-046 are not part of a previously identified source area.

Former Die Cast UST Area East of the Plant

Eighteen soil samples were collected from nine sample locations in the former die cast UST area east of the plant and analyzed for VOCs. CVOCs were not detected in the surface or subsurface soil samples collected from the former die cast UST area east of the plant.

3.3.3 CPAHs

Soil samples for SVOC analysis were collected from the PCB area north of the plant, the grassy area south of the plant, the area west of the plant, and the former die cast UST area east of the plant. Of the SVOCs, CPAHs were the focus of the investigation based on analytical results from previous investigation activities performed at the site and OMC's manufacturing operations. CPAHs include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluroanthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Figures 3-16 and 3-17 present sample locations and the total CPAH concentration detected in the surface soil (0 to 0.5 foot bgs) and from the interval above the water table and saturated soil samples (i.e., greater than 0.5 foot bgs), respectively.

Beneath the Plant

Soil samples from six sample locations were collected from beneath the plant for analysis of SVOCs. The analytical results indicate the occurrence of CPAHs in soils beneath the building is limited and at low concentrations. Total CPAH concentrations in the soils from depths between 3.3 and 6.5 feet ranged from 72 to 1,000 µg/kg, with the highest concentration from the chip wringer room (SO-081).

PCB Area North of the Plant

Seventy three soil samples were collected from 36 sample locations in the PCB area north of the plant and submitted for SVOC analysis. CPAHs were detected in 22 samples collected from 0 to 0.5 foot bgs at concentrations ranging from 36 µg/kg (SO-026) to 174,000 µg/kg (SO-032). Although the samples containing CPAH also contained PCBs, there was not a correlation relative to the magnitude of the concentrations. The sample with the second highest concentration of CPAHs was from SO-003 (103,900 µg/kg), which contained only 200 µg/kg of PCBs.

CPAHs were detected in 22 samples collected from depths between 0.3 and 3.3 feet in the PCB area north of the plant at concentrations ranging from 44 µg/kg (SO-013) to 54,600 µg/kg (SO-015). The distribution of the CPAH detections in the subsurface soils were limited to the area between the building and the West Containment Cell and retention pond and the open area north of the trim building (Figure 3-17).

Grassy Area South of the Plant

Sixteen samples (12 unsaturated and 4 saturated soil samples) for VOC analysis were collected from five soil samples and two geotech borings in the grassy area south of the plant (Figures 3-16 and 3-17). CPAHs were detected in the six surface samples at concentrations ranging from 1,586 µg/kg (SO-053) to 73,200 µg/kg (SO-074). SO-074 was collected from 0.4 to 0.8 feet bgs to allow sample collection below asphalt pavement. CPAH concentrations in the surface soil generally decrease to the south, away from the plant.

The extent and magnitude of the CPAH concentrations decrease with depth. CPAHs were detected in four of the subsurface soil samples collected from depths between 1 and 3.8 feet at concentrations ranging from 93 μg/kg (SO-053) to 465 μg/kg (SO-050).

Area West of the Plant

Three samples were collected from one location (SO-064) north of the former hazardous waste storage building, west of the main plant. CPAHs were detected in the two shallow samples at concentrations of 40,000 μg/kg (0 to 1.0 foot) and 30,500 μg/kg (4 to 4.6 feet). A black, oily substance was observed on the soil sample. This black, oily material may be related to operations at a manufactured gas plant historically located northwest of the site. Detections of CPAHs at this location appear to be limited in extent. Visual evidence and the presence of CPAHs were not detected at SO-046 or SO-065.

Former Die Cast UST Area East of the Plant

Eighteen samples were collected from nine sample locations in the former die cast UST area east of the plant. CPAHs were detected in nine surface soil samples at concentrations ranging from 716 μg/kg (SO-043) to 302,000 μg/kg (SO-035). The highest concentrations of CPAHs in the area are found in the parking area at the southeast corner of the building, just north of the WCP site.

The distribution and magnitude of the CPAH concentration in this area showed less of an impact with depth. CPAHs were detected at five of the nine subsurface sample locations at depths ranging from 0.6 to 2 feet. The detected CPAH concentrations ranged from 40 μg/kg (SO-038) to 9,660 μg/kg (SO-035). CPAHs were not detected in samples north of the former die cast UST area that contained the highest PCB concentrations, indicating that the presence of CPAHs are likely impacts related to the former USTs.

As part of the City of Waukegan' s investigation of the lakefront study area, composite samples for SVOC analyses were collected from the 0- to 3-foot and 5- to 8-foot soil intervals from 14 locations in the dune area. According to its report, no SVOCs were detected above the Tier 1 soil remediation objectives for residential properties (Deigan 2004; see Appendix A).

3.3.4 Metals

Metal constituents were detected in the one soil sample analyzed for metals as indicated on Table 3-1. None of the detected soil concentrations exceed the TACO Tier 1 values for direct contact for residential properties.

In addition, as part of the City of Waukegan's investigation of the lakefront study area, composite samples for metals analyses were collected from the 0- to 3-foot and 5- to 8-foot soil intervals from 14 locations in the dune area. According to its report, the metals were within the accepted IEPA background range for metropolitan areas (Deigan 2004; see Appendix A).

3.4 Groundwater

The overall RI objective for groundwater sampling is to define the nature and extent of contamination, to support the assessment of potential risk to human health and the environment, to determine whether remedial actions are necessary, and if so, to allow evaluation of remedial alternatives. The nature and extent of groundwater contamination has been relatively well defined based on data from previous investigations.

A focused RI field investigation was conducted to:

- Verify current groundwater quality conditions indicated by existing data
- Define the extent of contamination to the south, around "hot spot" areas, and beneath portions of the plant that have no data
- Define the extent of NAPL
- Collect field measurements and natural attenuation parameters to determine remedial options and hydrogeologic conditions at the site

3.4.1 Groundwater Sampling

Groundwater sampling using low-flow methods was performed as part of the groundwater investigation at the Plant 2 site between April 25 and May 6, 2005. The sampling was conducted in accordance with procedures presented in USEPA publication, *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers (2002).* A description of the locations and the procedures are summarized in the *Hydrogeologic Investigation* technical memorandum provided in Appendix B. The locations of new and existing groundwater monitoring wells are presented in Figure 3-18.

Based on previous investigations conducted by OMC and USEPA, the hydrogeologic investigation focused on two zones within the aquifer. The shallow groundwater zone includes the water table surface and includes 27 wells installed to depths up to 15 feet. The deep groundwater zone is monitored by 32 wells that are installed above the till surface at depths up to approximately 30 feet. Results of the investigation are discussed below using reference to shallow and deep groundwater zones.

Table 3-2 presents the frequency of detection of individual compounds in groundwater monitoring wells. Data are presented for the most frequently detected compounds by grouping into the following categories: PCBs, VOCs, CPAHs, and select metals. The TACO Tier 1 groundwater remediation objectives for Class 1 aquifers have also been provided for comparison purposes. Review of the frequency of detections and the compounds that exceed the Tier 1 groundwater objectives indicates that the major site-related impact to groundwater is the high concentration of CVOCs. The presence of elevated iron and manganese, and possibly arsenic, may be attributed to the reducing conditions that exist beneath the site.

PCBs

PCBs were detected in shallow groundwater at MW-501S, MW-512S, and MW-517S (Figure 3-19). The concentrations of PCBs detected in the shallow groundwater zone ranges from

0.19J µg/L (MW-512S) south of the triax building to 157 µg/L (MW-517S) adjacent to the former hazardous waste storage building. The third sample with detectable levels of PCBs was from MW-501S near the northeast corner of the East Containment Cell/property boundary. Specific PCB compounds detected in shallow groundwater were PCB Arochlors 1016 and 1248. The presence of PCBs in MW-512S and MW-501S that are screened across the water table are consistent with high concentrations of PCBs in the shallow soil in these areas (1,862 µg/kg from 2.1 to 2.4 feet in SO-074 and 14,000,000 µg/kg in S-34, respectively). The source of PCBs in MW-517S is not known, but observations during drilling at this location indicated a solvent-like odor.

In deep groundwater zone, PCBs were detected in 5 of the 32 well locations (see Figure 3-20) and are primarily confined to the old die cast area (MW-505D, MW-510D, MW-517D) and in the vicinity of the containment cells (W-3 and W-10). PCBs detected ranged in concentrations from 0.18 µg/L (MW-510D) beneath the plant to 230 µg/L outside the building near the former hazardous materials storage area (MW-517D). PCB compounds detected in deep groundwater were PCB Arochlors 1016, 1232, 1248, and 1254. PCBs were not detected in the shallow monitoring wells MW-505S and MW-510S.

VOCs

The CVOCs were the most frequent type of VOC detected in groundwater and were generally found at concentrations exceeding Tier 1 Groundwater Remediation Objectives (Table 3-2). Benzene was also frequently detected (in 45 of 93 samples), and is summed with detections of ethylbenzene, toluene, and xylene to depict total BTEX concentrations across the site. Total CVOC and total BTEX concentrations are shown on Figures 3-21 through 3-24 for shallow and deep groundwater zones.

Total CVOCs

Total CVOCs detected in shallow groundwater ranged from 0.06 µg/L (W-13) along the eastern property boundary to 64,810 µg/L (MW-503D) outside the building near the chip wringer. The distribution and magnitude of the CVOC detections are generally consistent with the primary areas of VOCs identified by the MIP investigation. The elevated CVOC concentrations detected in MW-504S (7,032 µg/L) and MW-503S (88,880 µg/L) verify the MIP results for Area B (near the chip wringer) and Area C (eastern metal working area), respectively. The additional area of elevated total CVOCs in shallow groundwater extending southwest of the triax building toward Larsen Marine Services property (MW-512S, MW-514S, and MW-11S) also correlated with Area A identified by the MIP investigation.

The two areas beneath the parts storage area (Areas D and E on Figure 3-8) were not confirmed by the groundwater samples collected from MW-505S and MW-510S. The maximum response was recorded for at least one of the detectors at MIP locations (MIP-014 and MIP-043), and the corresponding monitoring wells (MW-505S and MW-510S, respectively) contained relatively low concentrations of CVOCs (9.3 and 18.97 µg/L, respectively). Total CVOC concentrations of 84.5 and 32.3 µg/L were also detected in two of the wells along the southern margin of the North Ditch (MW-500S and MW-501S).

The distribution of the CVOCs detected in the deep groundwater is similar to that identified in the shallow zone. Comparison of the magnitude of the concentrations between the samples from the shallow and deep wells indicates the CVOC concentrations generally increase with depth. The location with highest CVOC concentration in the deep groundwater (105,380 µg/L in MW-506D) did not in contain much CVOCs in the shallow zone (26.31 µg/L in MW-506S). The majority of the total CVOCs detected in MW-506D consists of cis-1,2-DCE and vinyl chloride (89,000 and 16,000 µg/L, respectively), indicating that this location is not in a source area.

The concentrations in the groundwater outside of the chip wringer also showed a significant increase in concentration with depth. The total CVOC concentrations increased from 88,880 µg/L in MW-503S to 263,450 µg/L in MW-503D. The exception to increases with depth was at location MW-504 where the total CVOC concentration is greater in the shallow zone compared with the deep zone (7,983.2 µg/L compared with 5,353.7 µg/L). The sample from MW-504S contains TCE (420 µg/L) in addition to higher concentrations of the cis-1,2-DCE (6,200 µg/L) and vinyl chloride (1,100 µg/L).

Total BTEX

Total BTEX concentrations in both shallow and deep groundwater zones correlate to the areas of elevated CVOCs but are orders of magnitude lower than chlorinated concentrations (Figures 3-23 and 3-24). BTEX concentrations detected in shallow groundwater ranged from 0.03J µg/L at MW-3S to 84.07 µg/L at MW-14S. MW-14S is situated in the region just downgradient from the former UST/AST area.

Detected total BTEX concentrations in deep groundwater ranged from 0.04J µg/L (W-11) to 485 µg/L (MW-516D). These deep BTEX concentrations are generally detected at higher concentrations than those for the shallow groundwater, except at the MW-14 nest, where the shallow concentration (84.07 µg/L) is orders of magnitude higher than the deep concentration (0.07 µg/L).

CPAHs

CPAHs were not detected in any of the groundwater samples collected. Due to the hydrophobic nature of CPAH compounds, it is unlikely CPAH compounds would be detected in groundwater samples under current conditions.

Metals

Based on the manufacturing operations, frequency of detection, and the comparison with the Tier 1 Groundwater Remediation Goals (see Table 3-2), the metal compounds that indicate site-related impacts include arsenic, chromium, mercury, and total cyanide. Elevated concentrations of arsenic (greater than 50 µg/L) were generally not detected beneath the OMC Plant 2 building. The elevated concentration of arsenic detected in shallow groundwater was located downgradient of OMC Plant 2, beneath the eastern portion of the property (W-13, MW-100, MW-101, MW-102, MW-3S, and MW-14S). The highest arsenic concentration (357 µg/L) was found in MW-101. Arsenic in the deep groundwater was detected across the site, with the highest concentrations at locations south of the site in wells MW-515D, MW-3D, MW-14D, and MW-516D, possibly associated with former WCP operations. Arsenic was also detected at elevated concentrations in the deep groundwater in the northeast corner of the site along boundary of the North Ditch (MW-501D).

Similarly, chromium was detected in the shallow and deep groundwater, generally near the eastern and southern property boundaries, with the exception of W-6 – a deep well with an estimated chromium detection of 1.9 μg/L. The highest concentration detected was at MW-516D (9.4 μg/L). None of the chromium values exceeded the Tier 1 criteria.

Total cyanide was detected in both shallow and deep groundwater, mainly upgradient and downgradient of OMC Plant 2. The highest concentration of cyanide in the shallow zone was downgradient at MW-3S (99.2 μg/L), followed by upgradient at MW-502S (23.5 μg/L). MW-3S is located on the former WCP site. Total cyanide was detected at significantly higher concentrations in deep zone than in shallow zone groundwater. The highest concentrations detected in deep groundwater were at MW-516D (1,020 μg/L) and MW-515D (264 μg/L). The areas of high total cyanide concentrations are associated with areas surrounding the West Containment Cell and areas south of the site (Larsen Marine Service property and the former WCP).

3.4.2 NAPL Extent

Previous investigations have indicated the likely presence of NAPL onsite from observed groundwater concentrations. As part of the MIP investigation, DNAPL was suspected (based on MIP detection levels) in the courtyard north of the trim building just east of the old die cast area at MIP-027. Following this discovery, shallow soil borings SO-026 and SO-057 were completed at this location with no evidence of NAPL from soil samples collected. Groundwater grab samples collected at SO-057 (at the MIP-027 location) encountered a dark brown/black oily DNAPL at the base of the aquifer from 26.5 to 30.5 feet bgs. The DNAPL was collected and analyzed, and the analytical results indicate that the DNAPL is comprised of 1,600 μg/kg TCE.

In an effort to visually determine the extent of the DNAPL, four additional borings (SO-057N, SO-057S, SO-057E, and SO-057W) were installed 50 feet north, south, east, and west of the SO-057/MIP-027 location. The discreet groundwater sampler was advanced to a target depth of 30.5 feet bgs, the screen was opened, and approximately 2 gallons of water were purged. During purging, no DNAPL or indications of DNAPL (sheen, strong odors, high PID readings) were observed from any of the offset borings, indicating the likelihood of DNAPL extent to be less than 50 feet from SO-057.

3.4.3 Natural Attenuation Data

Monitoring and documentation of natural attenuation processes is known as monitored natural attenuation (MNA), which can achieve remediation objectives by reducing the mass, toxicity, mobility, volume, or concentration of contaminants within a time frame that is reasonable compared to that offered by other, more active methods (USEPA 1999). Ongoing Natural attenuation can involve a number of interactive processes that may include dilution, adsorption, advection, and dispersion; volatilization; geochemical dynamics; and chemical or biological transformation (microbial attenuation).

Natural attenuation will occur to some degree at any site, and the natural attenuation process helps to govern the nature and distribution of the contaminants in the subsurface environment. The magnitude of each individual natural attenuation process is governed by the prevailing site conditions and by the nature of the compound under study.

Based upon groundwater monitoring data for the shallow and deep unconsolidated zones performed in April and May 2005, chlorinated "parent" products in groundwater (TCE and 1,1,1-TCA) are being degraded by anaerobic reductive dehalogenation and other natural attenuation processes to transformation products (1,2-DCE, vinyl chloride, 1,1-DCA, 1,1-DCE, and chloroethane).

Using the methods presented by Wiedemeier and others (1998), data were compared to the preferred concentrations of natural attenuation indicator parameters for an overall screening of study area conditions. Based on data collected in April and May 2005 and the natural attenuation evaluation, "adequate evidence" supporting anaerobic biodegradation of chlorinated organics for the unconsolidated aquifer is present.

Final and nontoxic degradation byproducts, ethene and ethane, were detected at the site in April and May 2005. The detection of ethene and ethane at relatively high concentrations coincident with the high CVOC areas, and lower concentrations downgradient, indicates that microorganisms currently present in the subsurface have the capacity to degrade parent products through each step of the dechlorination process. Based on data collected to date, the presence of ethene/ethane in groundwater provides evidence that CVOCs are being dechlorinated to environmentally acceptable end products.

Results of field measurements of dissolved oxygen (DO) and oxidation reduction potential (ORP) also support the occurrence of reductive dehalogenation in the area of CVOC detection. DO and ORP were measured during well purging to assess the redox conditions in the groundwater. These data suggest that anaerobic conditions exist widely across the site. DO is below 1 milligram per liter (mg/L) in wells across the site, and ORP is at values less than 50 millivolts (mV) coincident with most areas of higher CVOC concentration, suggesting that anaerobic conditions persist across the site. As groundwater travels beneath OMC Plant 2, it appears to become more anaerobic from ongoing degradation processes.

In general, dissolved iron, dissolved manganese, and methane were detected above background concentrations, coincident with the highest CVOC concentrations near the chip wringer and areas south and west of the chip wringer (W-9, W-10, and well nests MW-502 through MW-506). Ethane and ethene were detected within these same zones at the highest concentrations. Ethene was not detected downgradient in the shallow portion of the aquifer, but was detected downgradient in the deep portion of the aquifer.

Nitrate concentrations were generally observed as less than 1 mg/L across the site, allowing for favorable conditions of natural attenuation. Sulfate values observed for the study area (generally observed above 20 mg/L) may also be indicative of active reductive dechlorination. Ethene and methane have been detected at the highest concentrations in samples collected from shallow zone well nests MW-502 through MW-506 and MW-510, indicating that methanogenic conditions exist beneath the northern portion of Plant 2, coincident with MW-503S.

In the deeper portion of the aquifer, higher concentrations of methane are present beneath the southern portion of Plant 2 (beneath the corporate building and parking lot areas) but are detected in all wells sampled. Methane is produced by the metabolism of a wide range of organic substrates by methanogenic bacteria. This group of bacteria is known to play a role in CVOC attenuation. Data collected from other portions of the study area suggest that natural attenuation is occurring, but at a much reduced rate when compared to the areas associated with the chip wringer and south and west of the chip wringer.

3.5 Soil Gas and Indoor Air

Soil gas and indoor air sampling investigations were conducted on February 23, 2005, to determine if volatilization from the groundwater plume may cause a potential inhalation risk to human health. A focused investigation was conducted to:

- Characterize the CVOC levels in the soil gas above the chlorinated solvent plume south of the OMC site.
- Determine CVOC concentrations in ambient air within the buildings currently utilized by Larsen Marine Services that may be impacted by volatilization from the groundwater plume.

The sampling procedures are discussed in the *Indoor Air and Soil Gas Sampling* technical memorandum provided in Appendix B.

3.5.1 Soil Gas Sampling

Five soil gas samples were collected from the unsaturated zone at locations south of the OMC site in the vicinity of Larsen Marine Services (OMC-GS001 through OMC-GS005) and are shown on Figure 3-25. The locations were selected based on the results from previous investigations and from the MIP investigation to provide spatial coverage across the groundwater plume beneath the Larsen Marine Services property.

Twelve VOCs were detected in the soil gas samples. CVOC, BTEX, chloromethane, dimethylbenzene, and MEK were the primary constituents detected in soil gas samples. The highest concentrations of VOCs detected (total of 85.2 parts per billion by volume [ppbv]) were from location GS-005, farthest south on the Larsen Marine Services property, just southeast of the "I/O" Building. Acetone (49 ppbv) comprised more than half of total VOCs detected at this location. Soil gas sample GS-003 had elevated detection limits due to the highest observed concentrations of benzene (8.8 ppbv) and MEK (11 ppbv) at this location. PCE and TCE were detected at GS-001, GS-004, and GS-005.

Other CVOCs detected included cis-1,1-DCE at GS-001 and GS-002, and 1,1,1-TCA at GS-004 and GS-005. PCE, 1,1,1-TCA, dimethylbenzene, chlorormethane, and ethylbenzene were not detected in any of the groundwater samples, MEK was detected in only one well (MW-14D), and acetone was detected in three of the deep groundwater samples. Although some of the detected compound in the soil gas samples are considered to be site-related (e.g., TCE and cis-1,2-DCE), the concentrations of these compounds and the predominance of additional compounds not detected in the groundwater samples indicates that the groundwater plume is not the major source of the VOCs detected in the soil gas samples.

3.5.2 Indoor Air Sampling

In addition to the soil gas samples, indoor air samples were collected from the Larsen Marine Services buildings. Over an 8-hour period, four samples from within main buildings on the Larsen Marine Services property (AA-001 through AA-004) and one background sample (AA-005) were collected using Summa canisters and analyzed for VOCs (Figure 3-25).

The FSP proposed to collect samples from within each of the main buildings on the Larsen Marine Services property. Prior to sampling, a reconnaissance of the buildings was conducted to identify the buildings with VOC-generating activities such as painting or degreasing, and to note where visible defects in the floor where soil gas intrusion could occur. Based on the site reconnaissance, the "I/O" Building and Building "H" were selected because visible defects were observed in the floor, and there were no odors or evidence of recent activities that could potentially compromise the indoor air quality. The sample locations (Figure 3-25) included:

- Three samples from locations in the "I/O" Building
- One sample from Building "H"
- One background sample was located outdoors about 75 feet southwest of Building "C," which was upwind of the study area at the start of the sampling

In general, similar compounds were detected in the indoor air investigation as were found in the soil gas investigation results. The highest total VOCs detected (61.2 ppbv) was at AA-001 in the "I/O" Building located near a crack in the cement floor. This location also had the highest concentrations of PCE and methylbenzene detected. PCE was detected in samples AA-001 through AA-003 collected from the "I/O" Building. PCE concentrations in the indoor air samples were an order of magnitude higher than detected in the soil gas.

Methyl benzene results were also generally higher in the indoor air samples than the soil gas, indicating that the source of PCE and methylbenzene may not be related to soil gas migration. Sample AA-004 from Building "H" had a considerably lower concentration of total VOCs (10.83 ppbv) than those detected at the "I/O" Building. This location had the only detection of methyl n-butyl ketone on the Larsen Marine Services property. The background air sample showed detections for benzene and methylbenzene at very low concentrations (0.23 and 0.38 ppbv, respectively).

Conclusion

Many of the same compounds were detected in the soil gas and indoor air samples. However, the main site-related VOCs (e.g., TCE and cis-1,2-DCE were detected near detection limits in the soil gas and not detected in the indoor air samples. Also, the predominance of compounds not detected in the groundwater samples at OMC indicates that the presence of VOCs in the buildings may not be related to volatilization from the groundwater plume.

3.6 Summary of Findings

The findings of the field investigation relative to the nature and extent of contamination at the OMC Plant 2 included the following:

- Results from the porous and nonporous wipe samples indicate that the building materials contain concentrations of PCBs exceeding the 10 $\mu g/cm^2$ TSCA disposal criteria, with the highest PCB concentrations in the old die cast and parts storage areas.

Concrete core samples from the floor and paint chip and concrete samples from these areas indicate the presence of PCBs at concentrations exceeding the 50 mg/kg TSCA disposal criteria.

- The manholes west of the corporate building to the triax building were found to contain varying amounts of standing water and large volumes of sediment. The plugging of the storm sewer pipe appears to be effectively preventing discharge directly to Waukegan Harbor.
- Concentrations of PCBs and CPAHs that exceed the TACO Tier 1 soil remediation objectives for residential properties (based on a direct contact pathway of exposure) were found in shallow soil. Elevated PCB concentrations exceeding 1,000 µg/kg were detected across the site and in the dune area east of the plant. The majority of PCB concentrations in the soil beneath the plant were consistent with where the wipe and concrete core samples indicated the presence of PCBs. The results indicate that the majority of the most contaminated soils were removed as part of OMC's remediation north of the building. The additional areas containing PCB- and/or CPAH-contaminated soil include north of the plant in the vicinity of former loading docks and tank areas, and in the open area north of the trim building, the former die cast UST/AST area, and the dune area east of the plant. Elevated concentrations of CPAHs were also found in the area surrounding the corporate building.
- DNAPL was encountered during the MIP investigation at one location and was comprised of 1,600 µg/kg of TCE. The extent of the DNAPL was investigated and not found 50 feet around the MIP-027/SO-057 location.
- Groundwater contamination is mainly related to the use of chlorinated solvents, primarily TCE, in manufacturing operations at OMC Plant 2. The MIP, soil, and groundwater investigations indicate that the distribution of CVOCs is limited in extent and appears as isolated areas rather than a single plume. The MIP investigation identified five areas of which three (Areas A, B, and C) were confirmed by the soil and groundwater results. The CVOC plume extending south of the building does not appear to have migrated far offsite and does not extend to Waukegan Harbor. The components of the CVOC concentrations include TCE, cis-12-DCE, and vinyl chloride. The presence of TCE degradation compounds and results of natural attenuation parameters indicate that the TCE area is being degraded by anaerobic reductive dechlorination.
- The relative concentrations of site-related compounds (e.g., TCE and cis-1,2-DCE) and the predominance of compounds not detected in the groundwater samples indicate that volatilization from groundwater is probably not the major source of the VOCs detected in the soil gas samples or the indoor air samples from the Larsen Marine Services buildings.

TABLE 3-1
Frequency of Contaminant Detection in Soil
OMC Plant 2 Data Evaluation Memorandum

Analyte	Units	Number of Samples	Number of Detects	Number of Non-detects	Maximum Detected Concentration	Minimum Detected Concentration	TACO Tier 1 Soil Remediation Objectives for Residential Properties—Human Health (mg/kg)
PCBs							
PCB-1232 (Arochlor 1232)	µg/kg	135	1	134	32,000	32,000	1,000
PCB-1242 (Arochlor 1242)	µg/kg	134	3	131	480,000	4,500	1,000
PCB-1248 (Arochlor 1248)	µg/kg	135	94	41	790,000	11	1,000
PCB-1254 (Arochlor 1254)	µg/kg	135	50	85	190,000	8	1,000
PCB-1260 (Arochlor 1260)	µg/kg	135	44	91	210,000	26	1,000
Metals							
Aluminum (fume or dust)	mg/Kg	15	15	0	1,300	620	NE
Arsenic	mg/Kg	15	15	0	5.4	0.77	750
Barium	mg/Kg	15	15	0	7.1	2.7	5,500
Beryllium	mg/Kg	15	15	0	0.4	0.078	160
Cadmium	mg/Kg	15	8	7	0.17	0.11	78
Calcium Metal	mg/Kg	15	15	0	31,000	12,000	NE
Chromium, Total	mg/Kg	15	15	0	10	2.4	230
Cobalt	mg/Kg	15	14	1	1 8	0.95	4,700
Copper	mg/Kg	15	15	0	4.6	1.4	2,900
Iron	mg/Kg	15	15	0	4,800	2,500	NE
Lead	mg/Kg	15	15	0	11	1.8	400
Magnesium	mg/Kg	15	15	0	16,000	6,100	NE
Manganese	mg/Kg	15	15	0	270	75	3,700
Mercury	mg/Kg	15	7	8	0.0087	0.0056	10
Nickel	mg/Kg	15	14	1	4.1	2	1600
Potassium	mg/Kg	15	14	1	220	94	NE
Sodium	mg/Kg	15	14	1	200	98	NE
Vanadium (fume or dust)	mg/Kg	15	15	0	13	5 3	550
Zinc	mg/Kg	15	15	0	28.4	10	23,000
Semivolatile Organic Compounds							
Chrysene	µg/kg	135	72	63	63,000	36	88,000
2,4-Dimethylphenol	µg/kg	135	2	133	89	68	1,600,000
2-Methylnaphthalene	µg/kg	135	15	120	3,000	43	NE
3,3'-Dichlorobenzidine	µg/kg	135	1	134	81	81	1,000
4-Chloro-3-Methylphenol	µg/kg	135	1	134	63	63	NE
4-Methylphenol (p-Cresol)	µg/kg	135	3	132	110	79	NE
Acenaphthene	µg/kg	135	27	108	19,000	42	4,700,000
Acenaphthylene	µg/kg	135	8	127	2,100	15	NE
Acetophenone	µg/kg	135	16	119	170	40	NE
Anthracene	µg/kg	135	39	96	17,000	13	23,000,000
Benzaldehyde	µg/kg	135	3	132	45	38	NE
Benzo(a)anthracene	µg/kg	135	63	72	47,000	25	900
Benzo(a)pyrene	µg/kg	135	64	71	40,000	27	90
Benzo(b)fluoranthene	µg/kg	135	64	71	51,000	40	900
Benzo(g,h,i)perylene	µg/kg	135	57	78	32,000	36	NE

TABLE 3-1
Frequency of Contaminant Detection in Soil
OMC Plant 2 Data Evaluation Memorandum

Analyte	Units	Number of Samples	Number of Detects	Number of Non-detects	Maximum Detected Concentration	Minimum Detected Concentration	TACO Tier 1 Soil Remediation Objectives for Residential Properties—Human Health (mg/kg)
Benzo(k)fluoranthene	µg/kg	135	54	81	29,000	38	9,000
Benzyl butyl phthalate	µg/kg	135	1	134	130	130	930,000
Biphenyl (diphenyl)	µg/kg	135	6	129	1500	51	NE
bis(2-Ethylhexyl) phthalate	µg/kg	135	31	104	3100	36	46,000
Caprolactam	µg/kg	135	4	131	210	41	NE
Carbazole	µg/kg	135	31	104	17,000	39	32,000
Dibenz(a,h)anthracene	µg/kg	135	38	97	13,000	39	90
Dibenzofuran	µg/kg	135	23	112	16,000	46	NE
Diethyl phthalate	µg/kg	135	3	132	290	49	2,000,000
Di-n-butyl phthalate	µg/kg	135	14	121	390	40	2,300,000
Di-n-octylphthalate	µg/kg	135	3	132	73,000	21,000	1,600,000
Fluoranthene	µg/kg	135	71	64	150,000	40	3,100,000
Fluorene	µg/kg	135	26	109	17,000	42	3,100,000
Hexachlorobenzene	µg/kg	135	2	133	230	59	400
Indeno(1,2,3-c,d)pyrene	µg/kg	135	60	75	27,000	38	900
Naphthalene	µg/kg	135	15	120	5,100	62	170,000
N-nitrosodi-n-propylamine	µg/kg	135	1	134	130	130	90
N-nitrosodiphenylamine	µg/kg	135	2	133	250	48	130,000
Phenanthrene	µg/kg	135	61	74	200,000	38	NE
Phenol	µg/kg	135	7	128	20,000	39	47,000,000
Pyrene	µg/kg	135	77	58	140,000	40	2,300,000
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	146	7	139	16,000	5	1,200,000
1,1-Dichloroethane	µg/kg	146	3	143	530	4	1,300,000
1,1-Dichloroethylene	µg/kg	146	4	142	1,300	5	700,000
1,2,4-Trichlorobenzene	µg/kg	146	2	144	29	2	780,000
1,2-Dichlorobenzene	µg/kg	146	1	145	2	2	560,000
1,4-Dichlorobenzene	µg/kg	146	3	143	3	2	11,000,000
Acetone	µg/kg	146	15	131	54	3	7,800,000
Benzene	µg/kg	146	1	145	15	15	800
Carbon disulfide	µg/kg	146	18	128	29	2	720,000
Carbon tetrachloride	µg/kg	146	2	144	2,300	6	300
Chloroethane	µg/kg	146	2	144	27	4	NE
Chloroform	µg/kg	146	5	141	460	2	300
cis-1,2-Dichloroethylene	µg/kg	146	38	108	66,000	3	780,000
Cyclohexane	µg/kg	146	2	144	7	3	NE
Methylene chloride	µg/kg	146	27	119	380	2	13,000
Ethylbenzene	µg/kg	146	5	141	530	10	400,000
Isopropylbenzene (cumene)	µg/kg	146	5	141	14	2	NE
1,3-Dichlorobenzene	µg/kg	146	3	143	6	3	NE
2-Butanone	µg/kg	146	7	139	10	3	NE
Methyl isobutyl ketone (4-methyl-2-pentanone)	µg/kg	146	1	145	12	12	NE
2-Hexanone	µg/kg	146	1	145	3	3	NE

TABLE 3-1
Frequency of Contaminant Detection in Soil
OMC Plant 2 Data Evaluation Memorandum

Analyte	Units	Number of Samples	Number of Detects	Number of Non-detects	Maximum Detected Concentration	Minimum Detected Concentration	TACO Tier 1 Soil Remediation Objectives for Residential Properties—Human Health (mg/kg)
Toluene	µg/kg	146	6	140	460	4	650,000
Methylcyclohexane	µg/kg	146	3	143	44	4	NE
Tetrachloroethylene(pce)	µg/kg	146	4	142	1900	12	11,000
trans-1,2-Dichloroethene	µg/kg	146	16	130	250	3	1,600,000
Trichloroethylene	µg/kg	146	50	96	1,300,000	2	5,000
Vinyl chloride	µg/kg	146	9	137	190	4	280
Xylenes, Total	µg/kg	146	8	138	2,300	3	320,000

TABLE 3-2
Frequency of Contaminant Detection in Groundwater
OMC Plant 2 Data Evaluation Memorandum

Analyte	Units	Number of Samples	Number of Detects	Minimum Detected Concentration	Maximum Detected Concentration	TACO Tier 1 Groundwater Remediation Objectives for Class I Aquifers
Metals						
Aluminum (fume or dust)	µg/L	127	33	13 3	831	NE
Arsenic	µg/L	127	42	5	1430	50
Barium	µg/L	127	33	108	751	2000
Calcium Metal	µg/L	127	127	12,800	395,000	NE
Chromium, Total	µg/L	127	10	0.87	9.4	100
Cobalt	µg/L	127	15	0.7	4 2	1,000
Copper	µg/L	127	17	1.6	41.1	650
Cyanide	µg/L	62	33	1	1,020	200
Iron	µg/L	127	118	9.1	50,500	5,000
Lead	µg/L	127	1	4	4	7.5
Magnesium	µg/L	127	127	10,800	136,000	NE
Manganese	µg/L	127	125	33	1,100	150
Mercury	µg/L	127	1	0.066	0.066	2
Nickel	µg/L	127	25	1.9	15.1	100
Potassium	µg/L	127	127	658	20,500	NE
Selenium	µg/L	127	3	7.9	10.7	50
Sodium	µg/L	127	127	5,060	637,000	NE
Vanadium (fume or dust)	µg/L	127	34	0.63	25.7	49
Zinc	µg/L	127	65	2.4	174	5,000
PCBs						0
PCB-1016 (Arochlor 1016)	µg/L	62	3	0.19	14	0.5
PCB-1232 (Arochlor 1232)	µg/L	62	1	110	110	0.5
PCB-1248 (Arochlor 1248)	µg/L	62	4	0.18	61	0.5
PCB-1254 (Arochlor 1254)	µg/L	62	1	1.5	1.5	0.5
Semivolatile Organic Compounds						0
2,4-Dimethylphenol	µg/L	62	5	2.9	3,000	140
2-Methylphenol (o-Cresol)	µg/L	62	2	1,000	2,300	350
4-Methylphenol (p-Cresol)	µg/L	62	9	2.9	50,000	NE
Acenaphthene	µg/L	62	1	9.5	9 5	420
Acetophenone	µg/L	62	1	1.4	1.4	NE
Anthracene	µg/L	62	1	2.6	2.6	2,100
Dibenzofuran	µg/L	62	1	2.7	2.7	NE
Di-n-butyl phthalate	µg/L	62	18	0.51	1.5	700
Fluoranthene	µg/L	62	1	5.5	5.5	280
Fluorene	µg/L	62	1	7.6	7.6	280
Pentachlorophenol	µg/L	62	1	0.96	0 96	1
Phenanthrene	µg/L	62	1	29	29	NE
Phenol	µg/L	62	2	4.5	140	100
Pyrene	µg/L	62	1	3.1	3 1	210
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	93	2	2.3	2,900	200
1,1,2-Trichloro-1,2,	µg/L	92	1	160	160	NE
1,1,2-Trichloroethane	µg/L	93	1	0.34	0 34	5
1,1-Dichloroethane	µg/L	93	45	0 065	480	700
1,1-Dichloroethylene	µg/L	93	30	0.12	480	7

TABLE 3-2

Frequency of Contaminant Detection in Groundwater

OMC Plant 2 Data Evaluation Memorandum

Analyte	Units	Number of Samples	Number of Detects	Minimum Detected Concentration	Maximum Detected Concentration	TACO Tier 1 Groundwater Remediation Objectives for Class I Aquifers
1,2,4-Trichlorobenzene	µg/L	92	1	160	160	NE
1,2-Dichloroethane	µg/L	93	10	0.062	0.87	5
1,3-Dichlorobenzene	µg/L	92	4	0.09	0.81	NE
1,4-Dichlorobenzene	µg/L	92	3	0.07	110	75
2-Butanone	µg/L	93	2	0.37	1.6	NE
2-Hexanone	µg/L	93	1	0.49	0.49	NE
Acetone	µg/L	93	15	1.8	33	700
Benzene	µg/L	93	45	0.031	410	5
Bromodichloromethane	µg/L	93	2	0.13	0.15	0.2
Bromoform	µg/L	93	4	0.83	270	1
Carbon Disulfide	µg/L	93	23	0.081	1.7	700
Chloroethane	µg/L	93	7	0.24	110	NE
Chloroform	µg/L	93	20	0.048	140	0.2
Chloromethane	µg/L	93	2	0.17	4.1	NE
cis-1,2-Dichloroethylene	µg/L	92	74	0.11	280,000	70
Cyclohexane	µg/L	92	8	0.11	0.36	NE
Dibromochloromethane	µg/L	93	2	0.065	0.079	NE
Ethylbenzene	µg/L	93	5	0.11	0.45	700
Methyl Acetate	µg/L	92	1	7.2	7.2	NE
Methylcyclohexane	µg/L	92	22	0.087	0.28	NE
Methylene Chloride	µg/L	93	8	0.17	170	5
Tetrachloroethylene(PCE)	µg/L	93	2	0.43	110	5
Toluene	µg/L	93	33	0.03	75	1,000
Trans-1,2-Dichloroethene	µg/L	92	54	0.08	500	100
Trichloroethylene	µg/L	93	48	0.06	16,000	5
Vinyl Chloride	µg/L	93	66	0.32	16,000	2
Xylenes, Total	µg/L	93	6	0.07	4	10,000

NE indicates a TACO remediation objective has not been established for this contaminant.

Figure 3-1
NPW Sample Results
OMC Plant 2

Note: Concentrations in ug/100 cm^2

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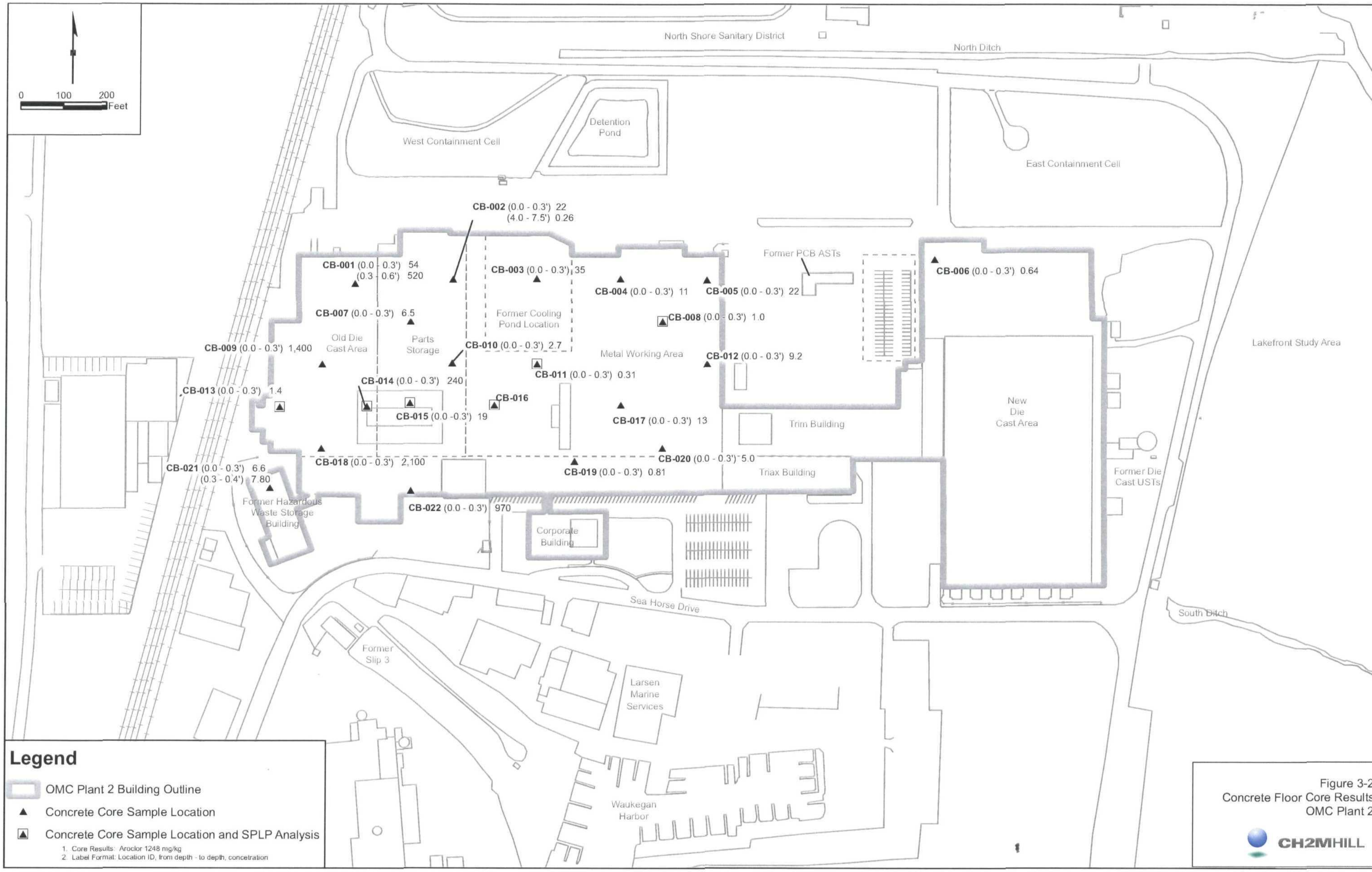

Figure 3-2
Concrete Floor Core Results
OMC Plant 2

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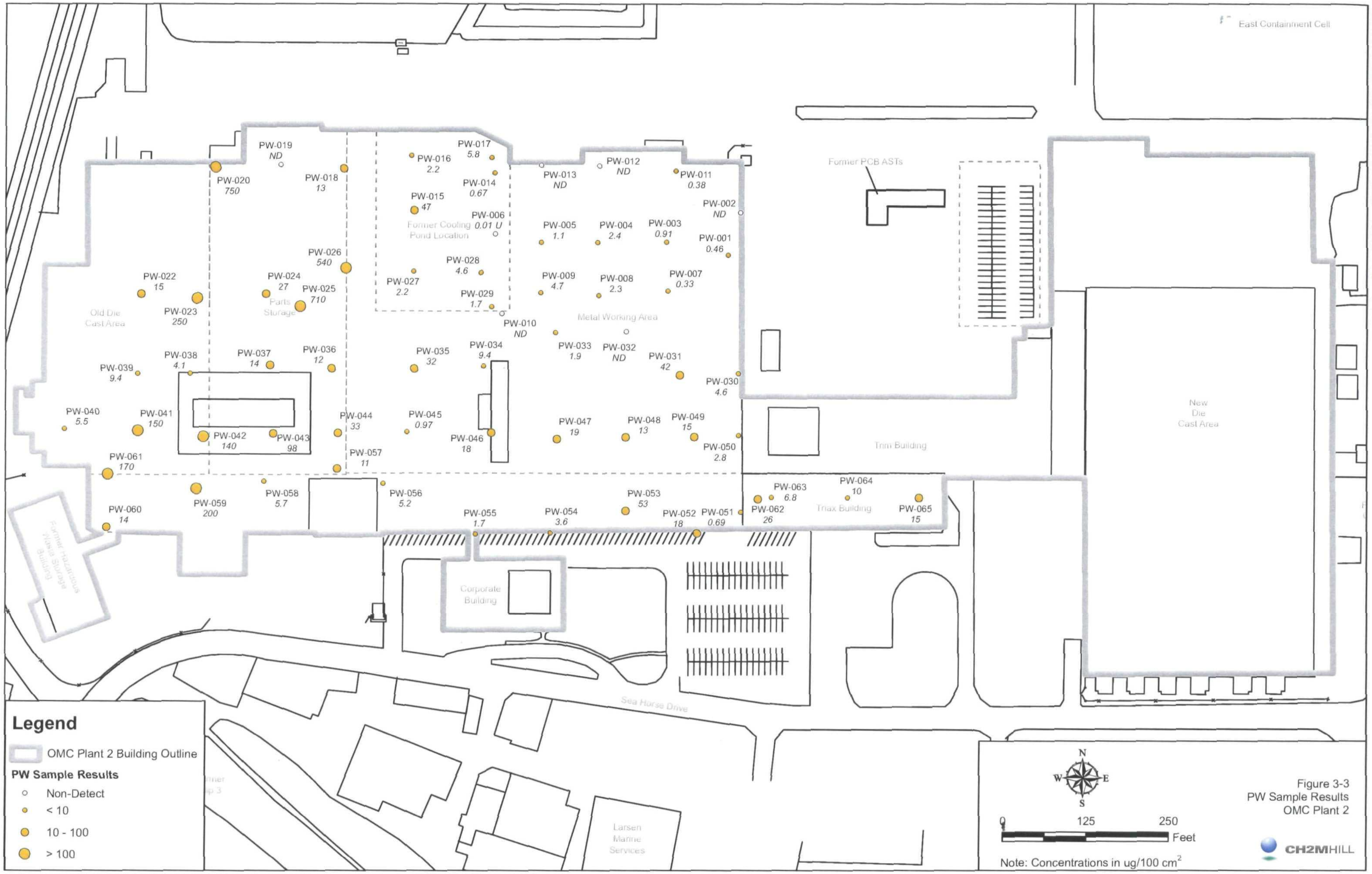

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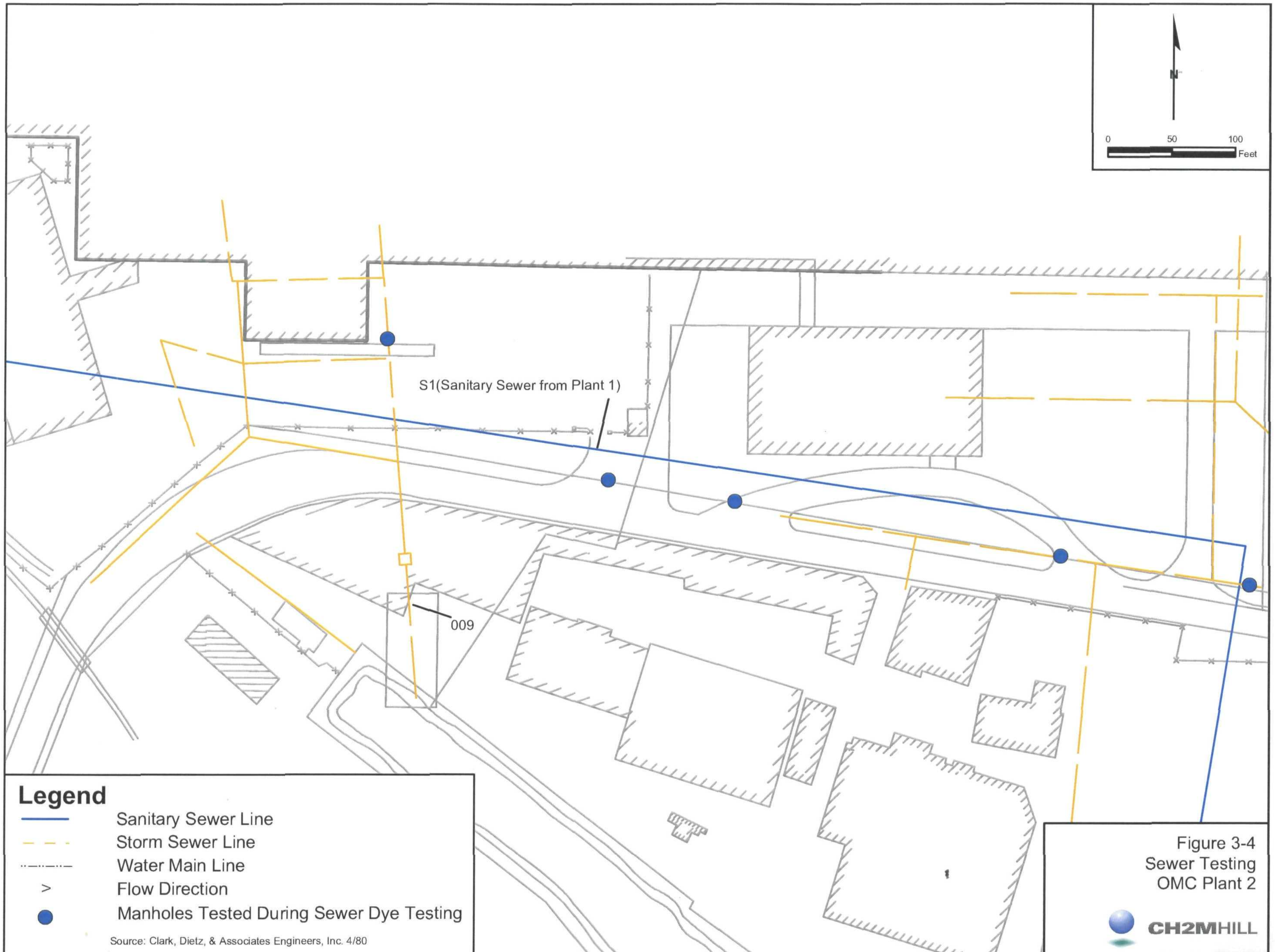

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Figure 3-5
PID Detector Response (> 200,000 uV)
OMC Plant 2

CH2MHILL

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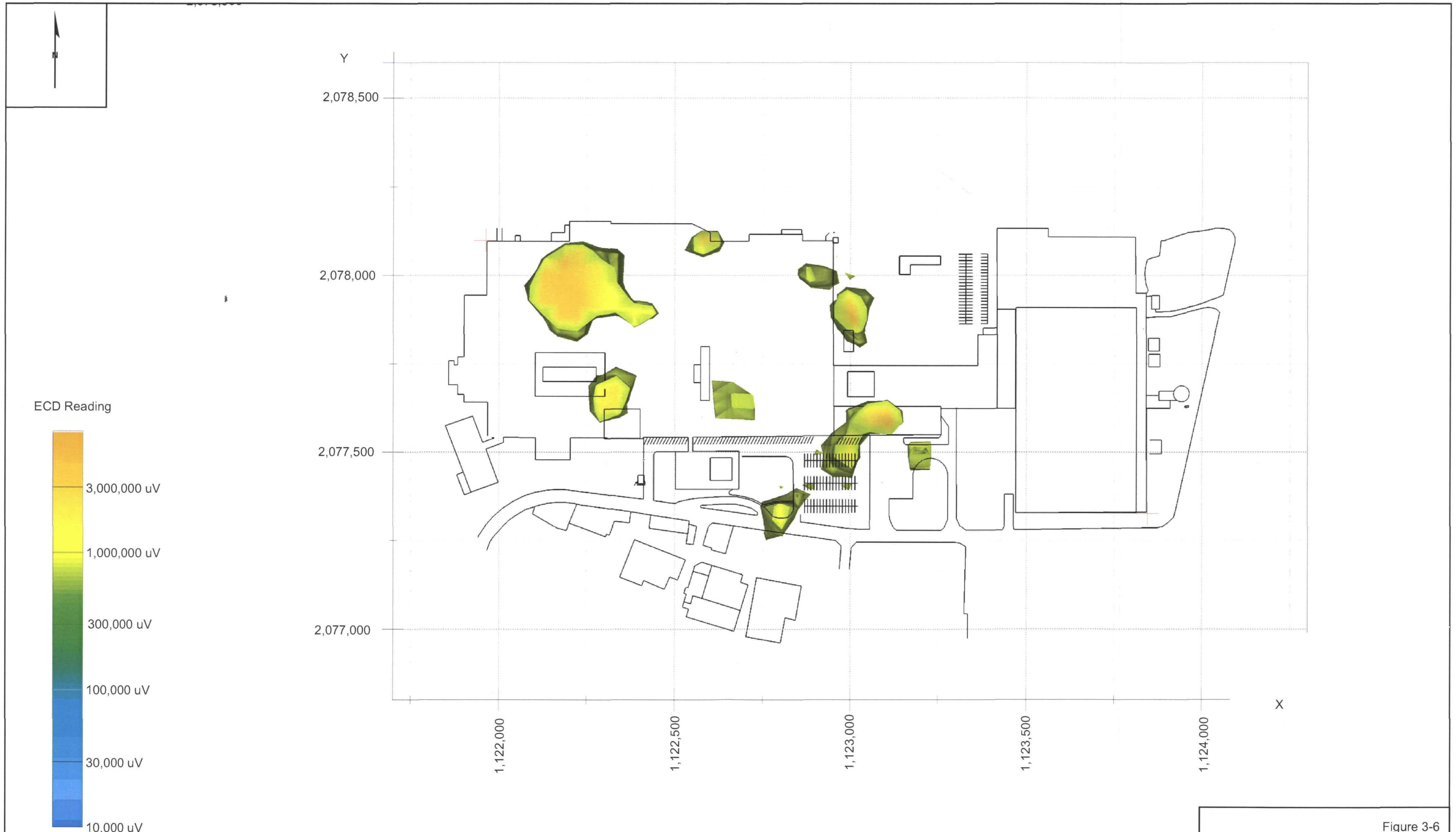

Figure 3-6
ECD Detector Response (> 750,000 uV)
OMC Plant 2

CH2MHILL

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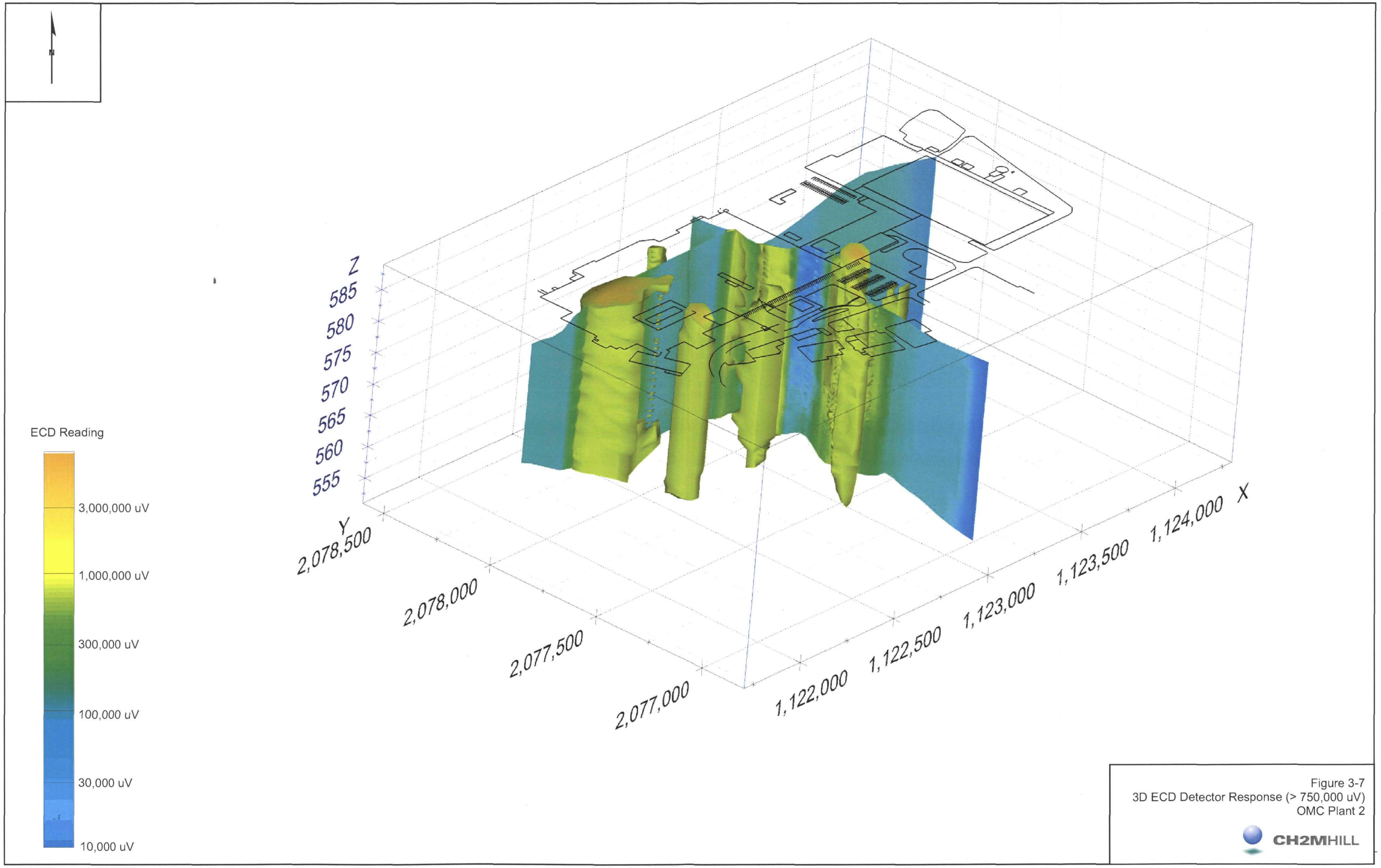

Figure 3-7
3D ECD Detector Response (> 750,000 uV)
OMC Plant 2

CH2MHILL

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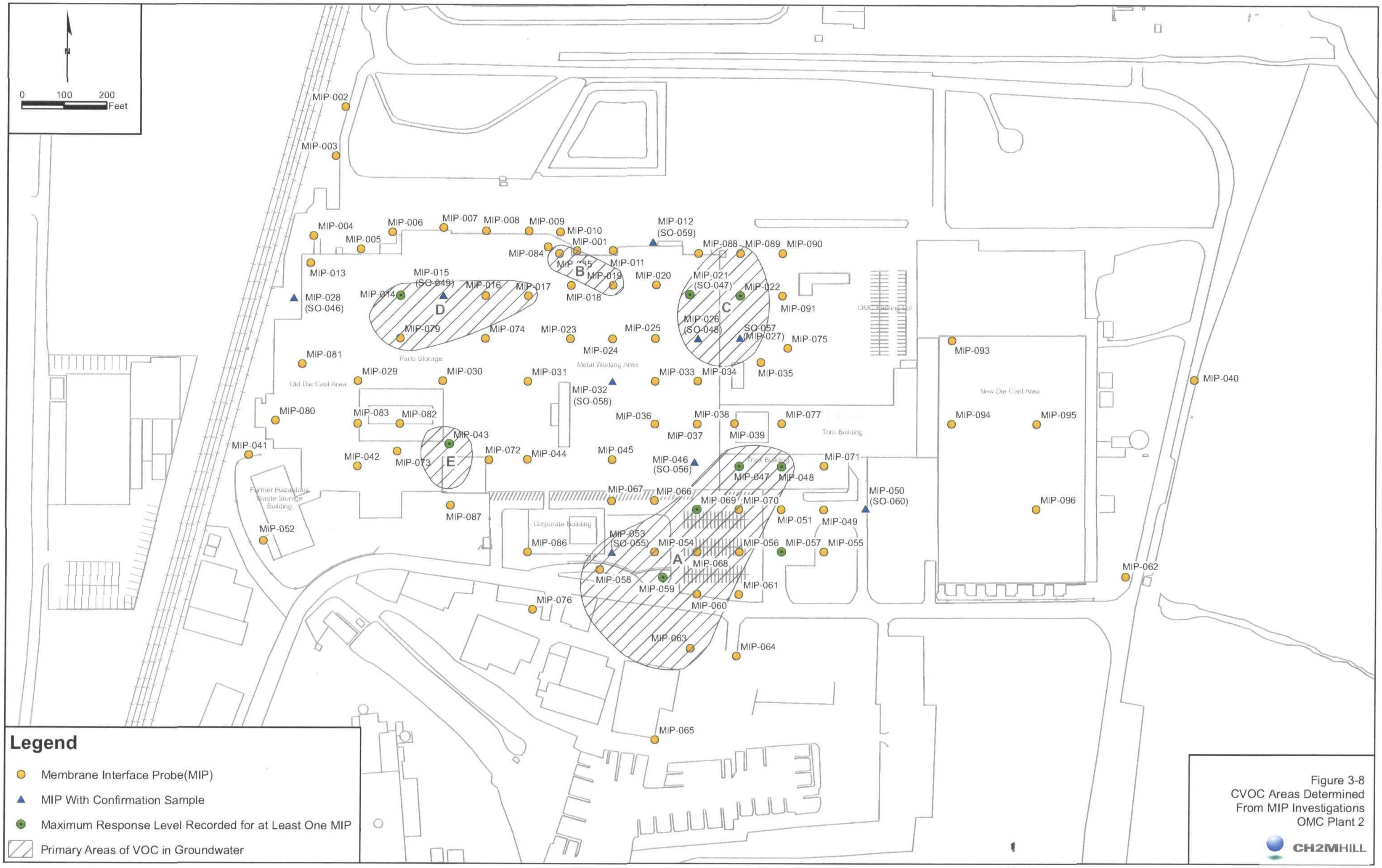

Legend

- Membrane Interface Probe(MIP)
- MIP With Confirmation Sample
- Maximum Response Level Recorded for at Least One MIP
- Primary Areas of VOC in Groundwater

Figure 3-8
CVOC Areas Determined
From MIP Investigations
OMC Plant 2

CH2MHILL

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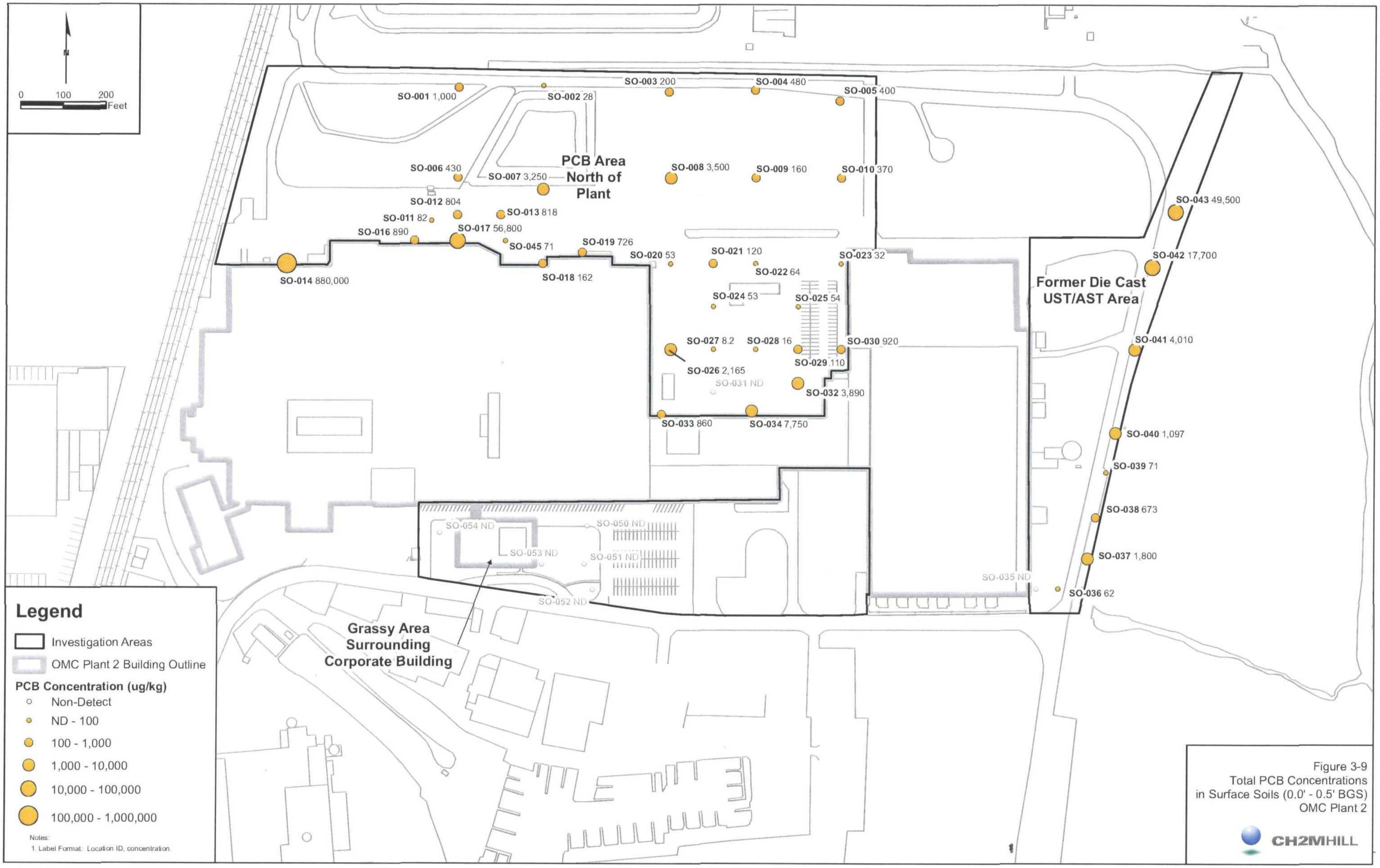

Figure 3-9
Total PCB Concentrations
in Surface Soils (0.0' - 0.5' BGS)
OMC Plant 2

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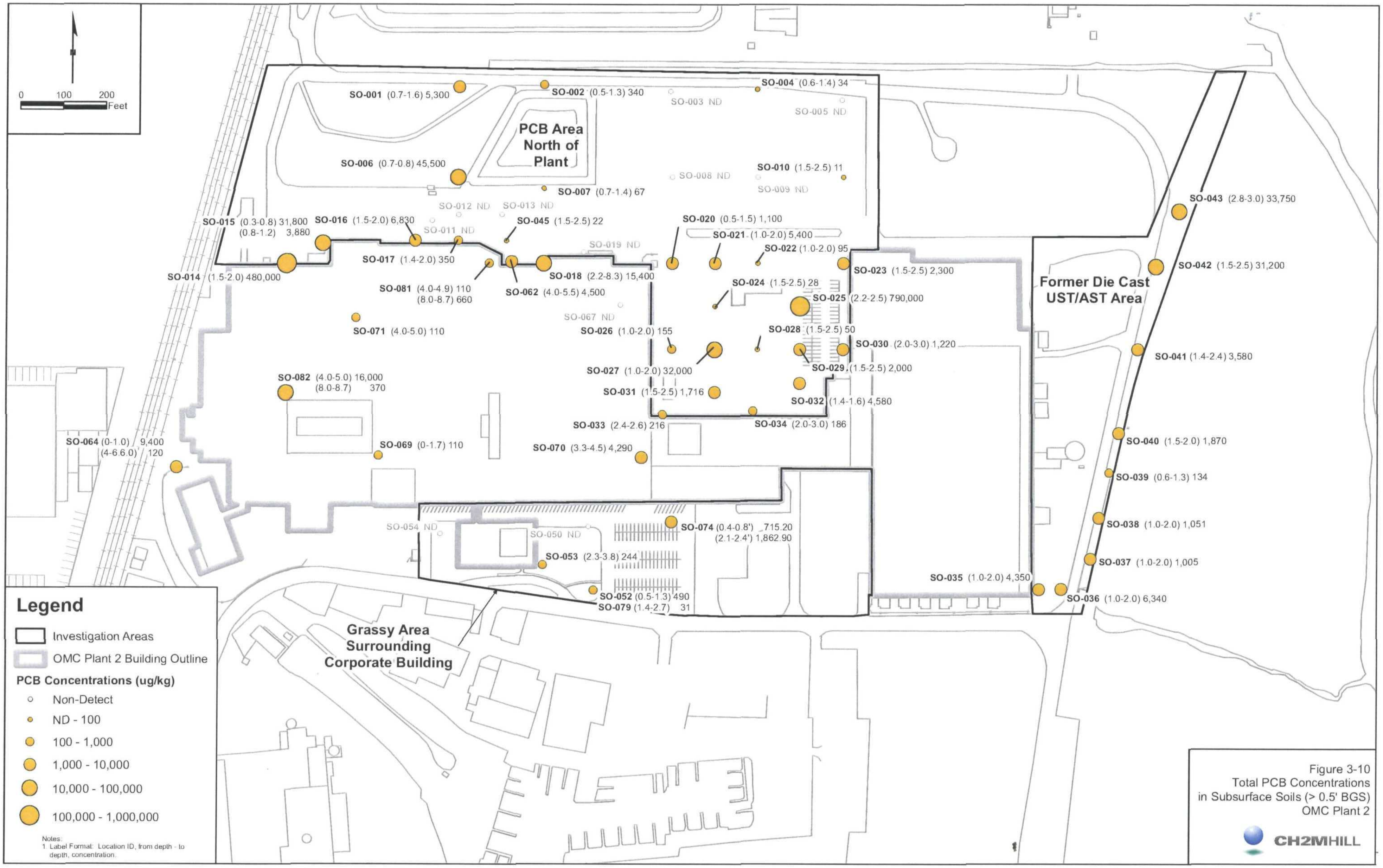

Figure 3-10
Total PCB Concentrations
in Subsurface Soils (> 0.5' BGS)
OMC Plant 2

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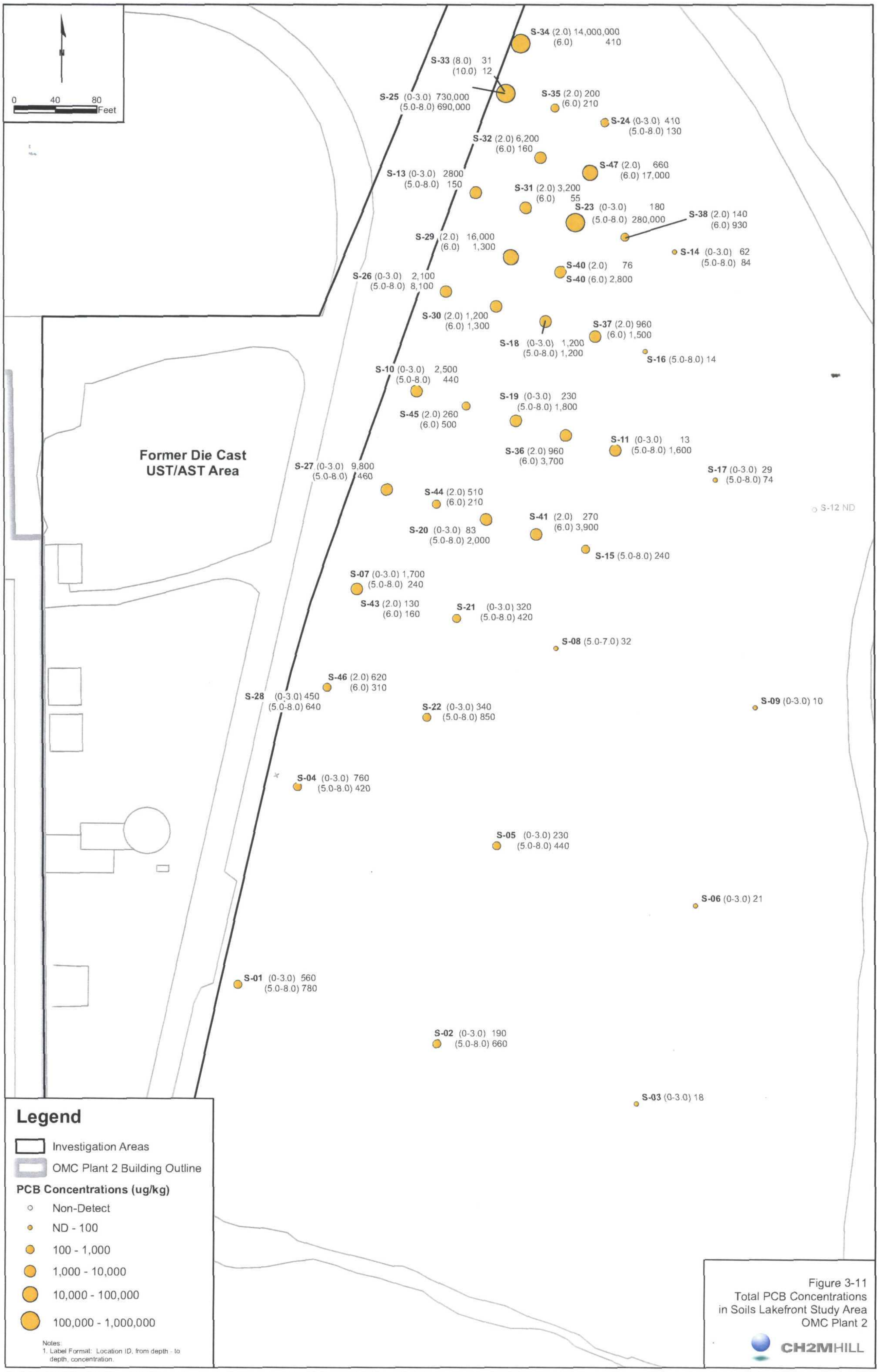

Figure 3-11
Total PCB Concentrations
in Soils Lakefront Study Area
OMC Plant 2

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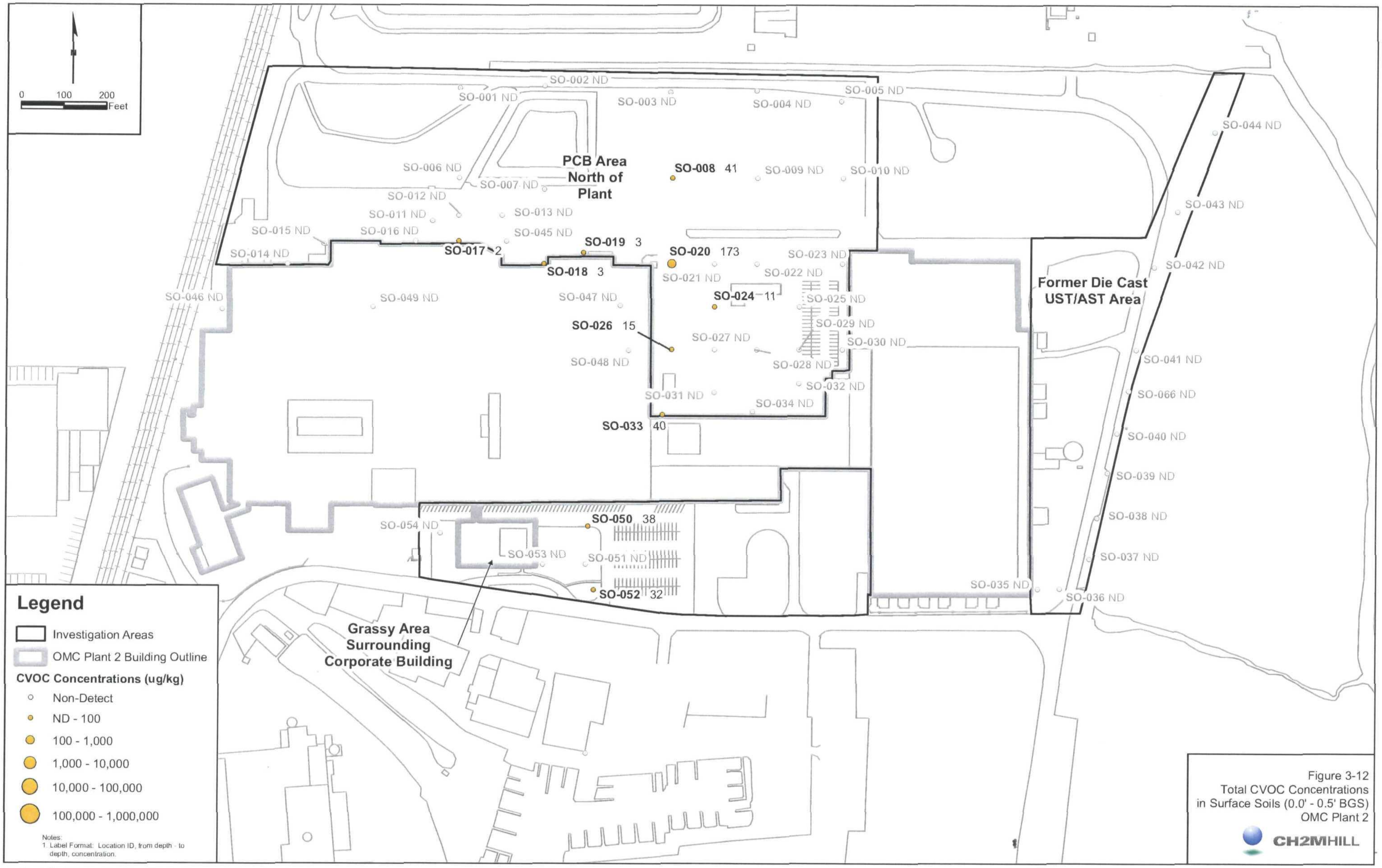

Figure 3-12
Total CVOC Concentrations
in Surface Soils (0.0' - 0.5' BGS)
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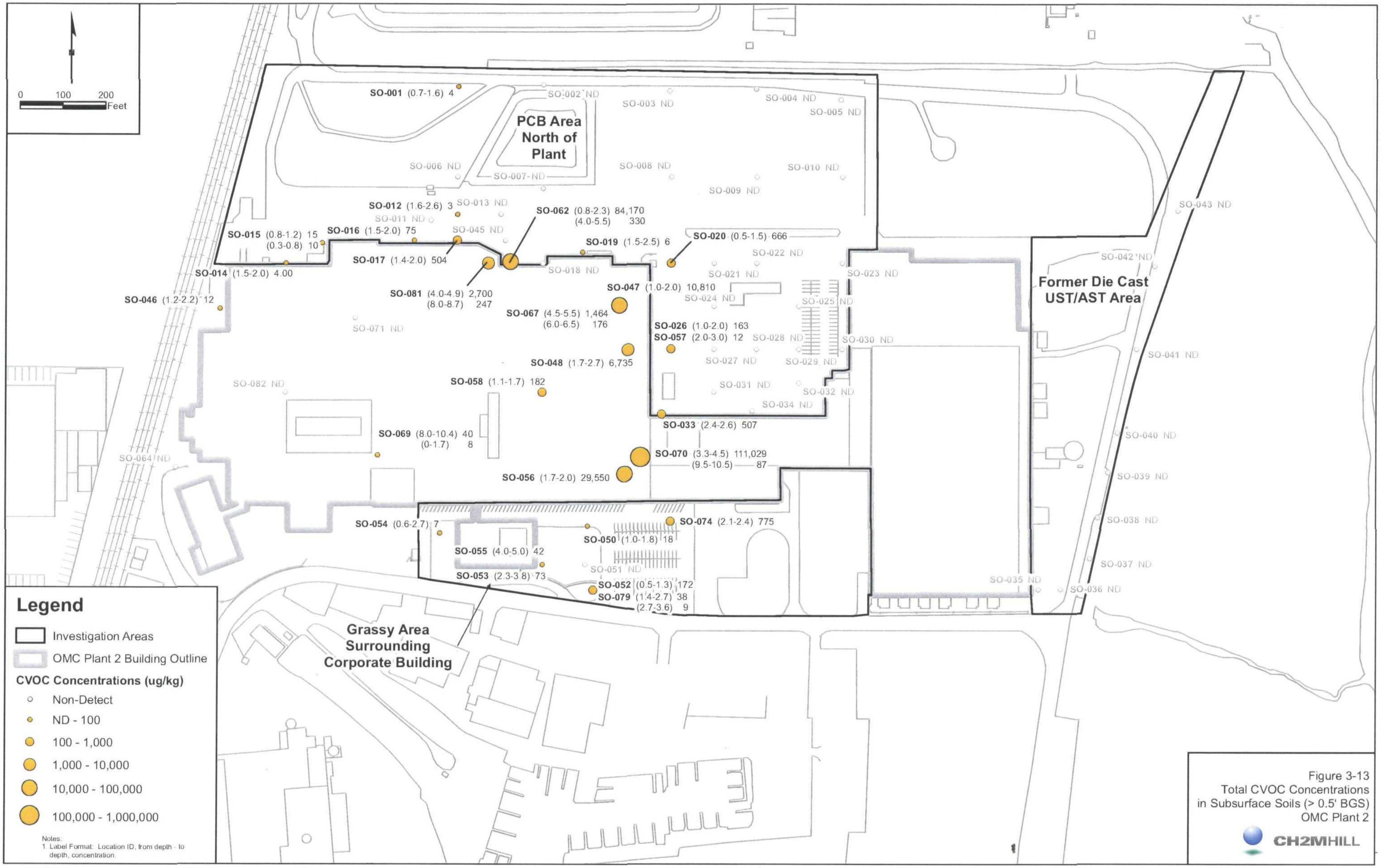

Figure 3-13
Total CVOC Concentrations
in Subsurface Soils (> 0.5' BGS)
OMC Plant 2

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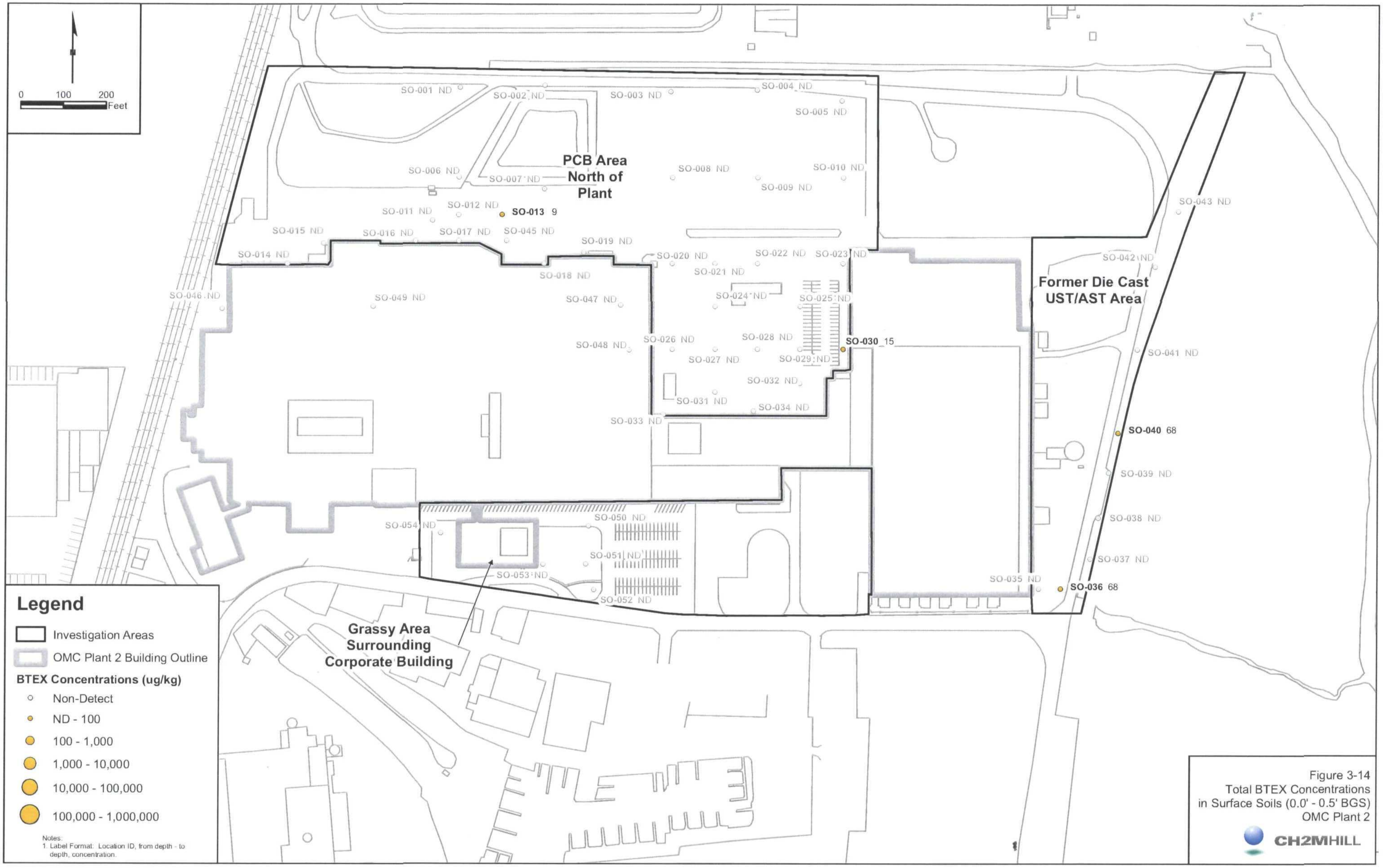

Figure 3-14
Total BTEX Concentrations
in Surface Soils (0.0' - 0.5' BGS)
OMC Plant 2

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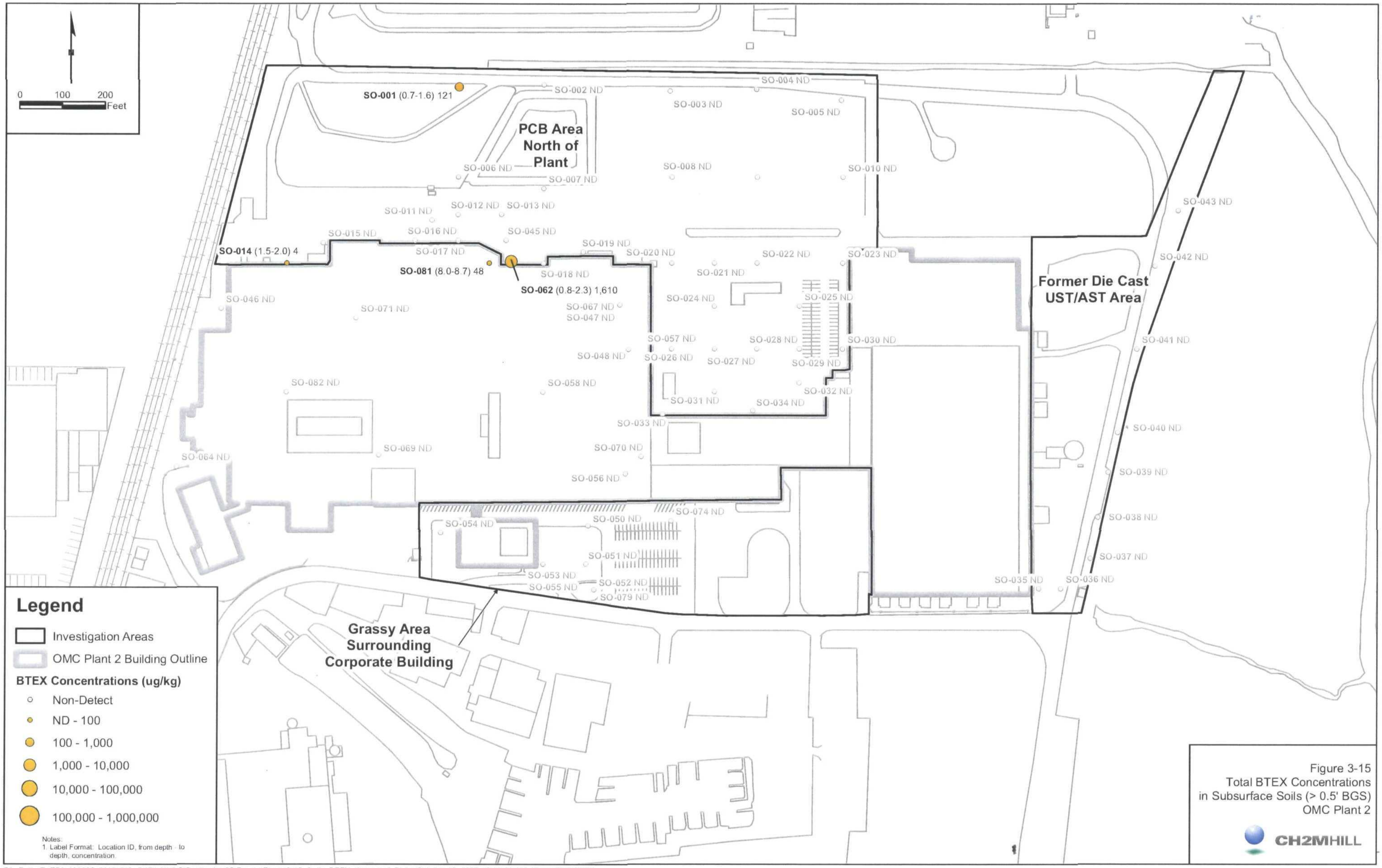

Figure 3-15
Total BTEX Concentrations
in Subsurface Soils (> 0.5' BGS)
OMC Plant 2

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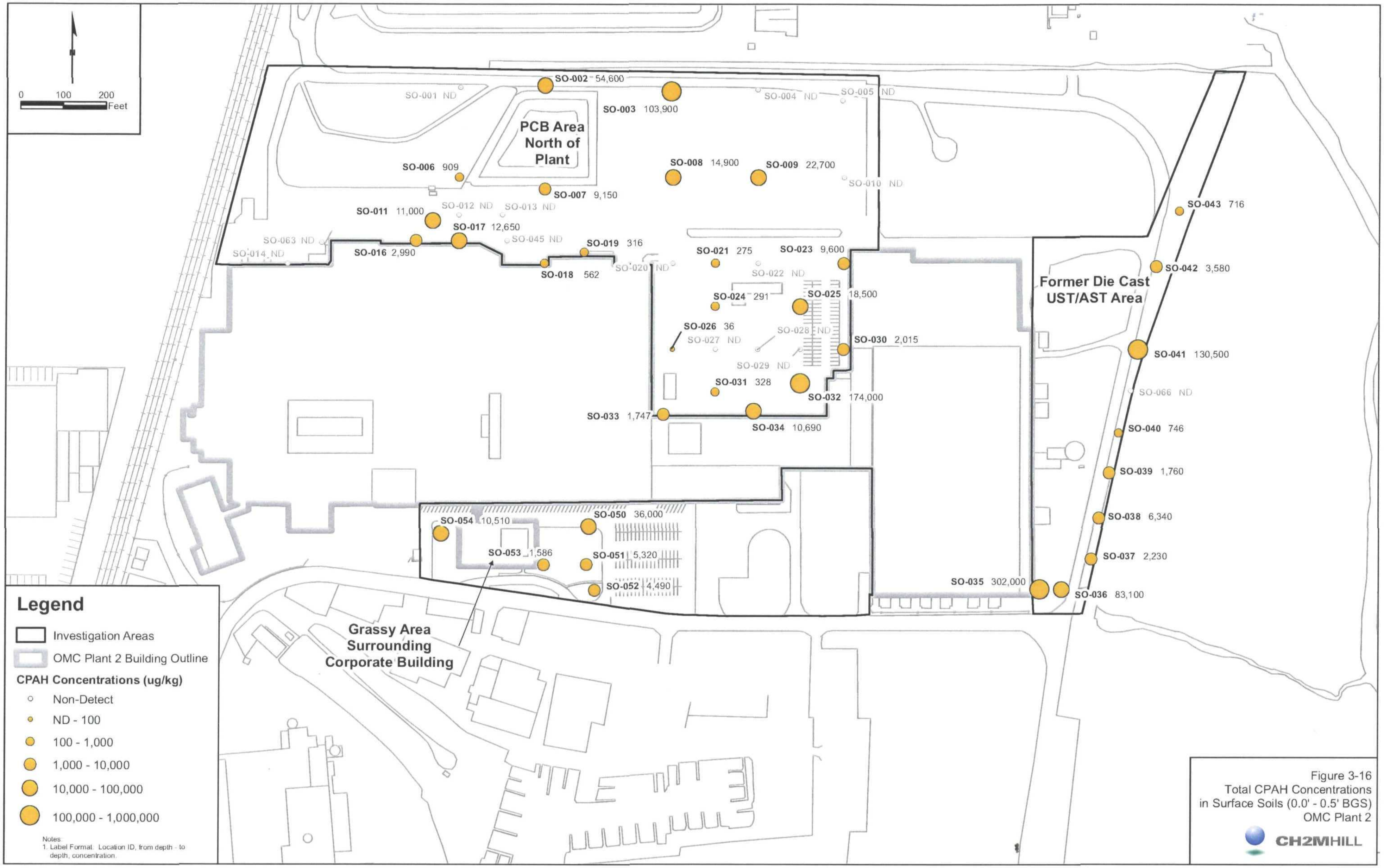

Figure 3-16
Total CPAH Concentrations
in Surface Soils (0.0' - 0.5' BGS)
OMC Plant 2

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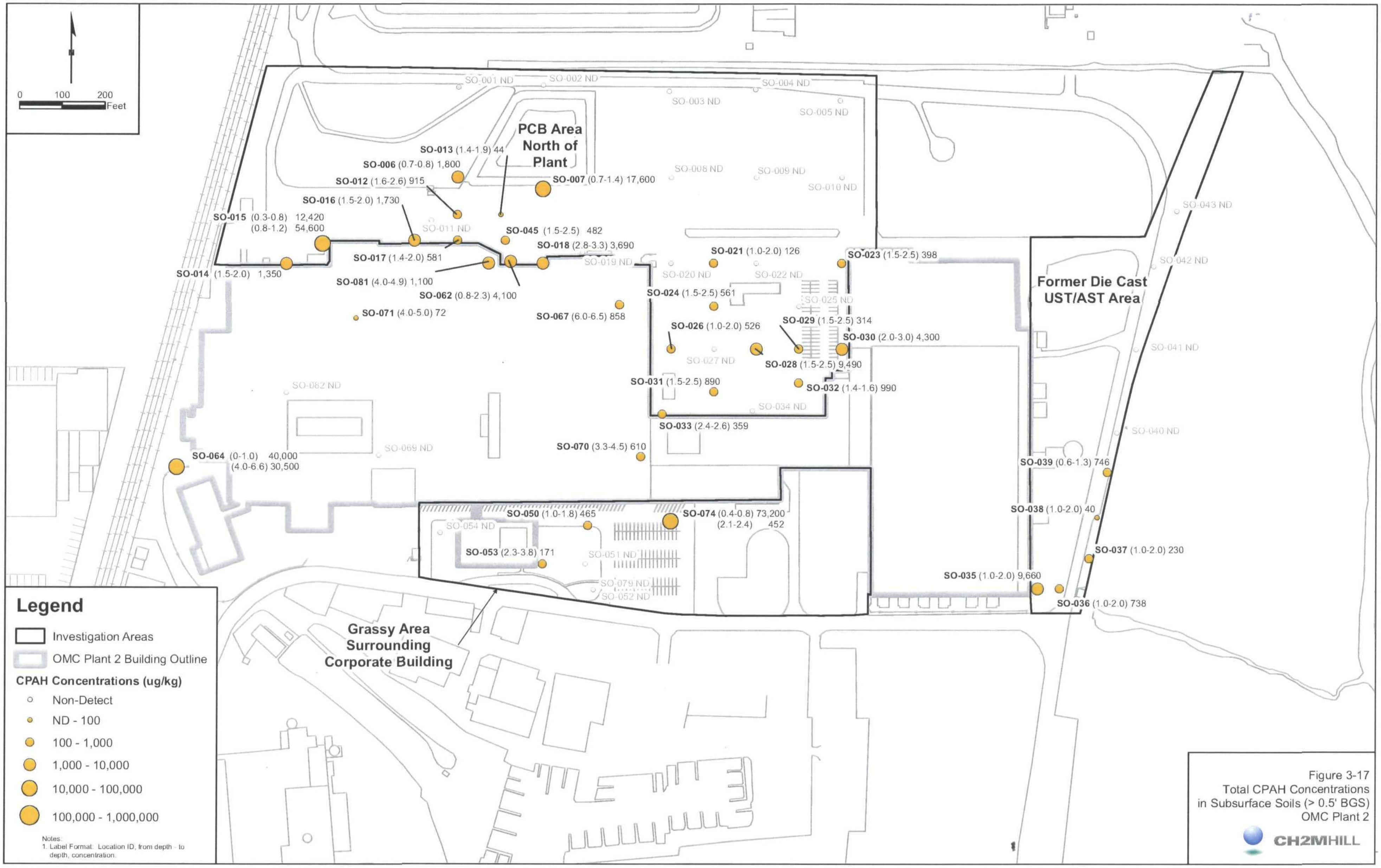

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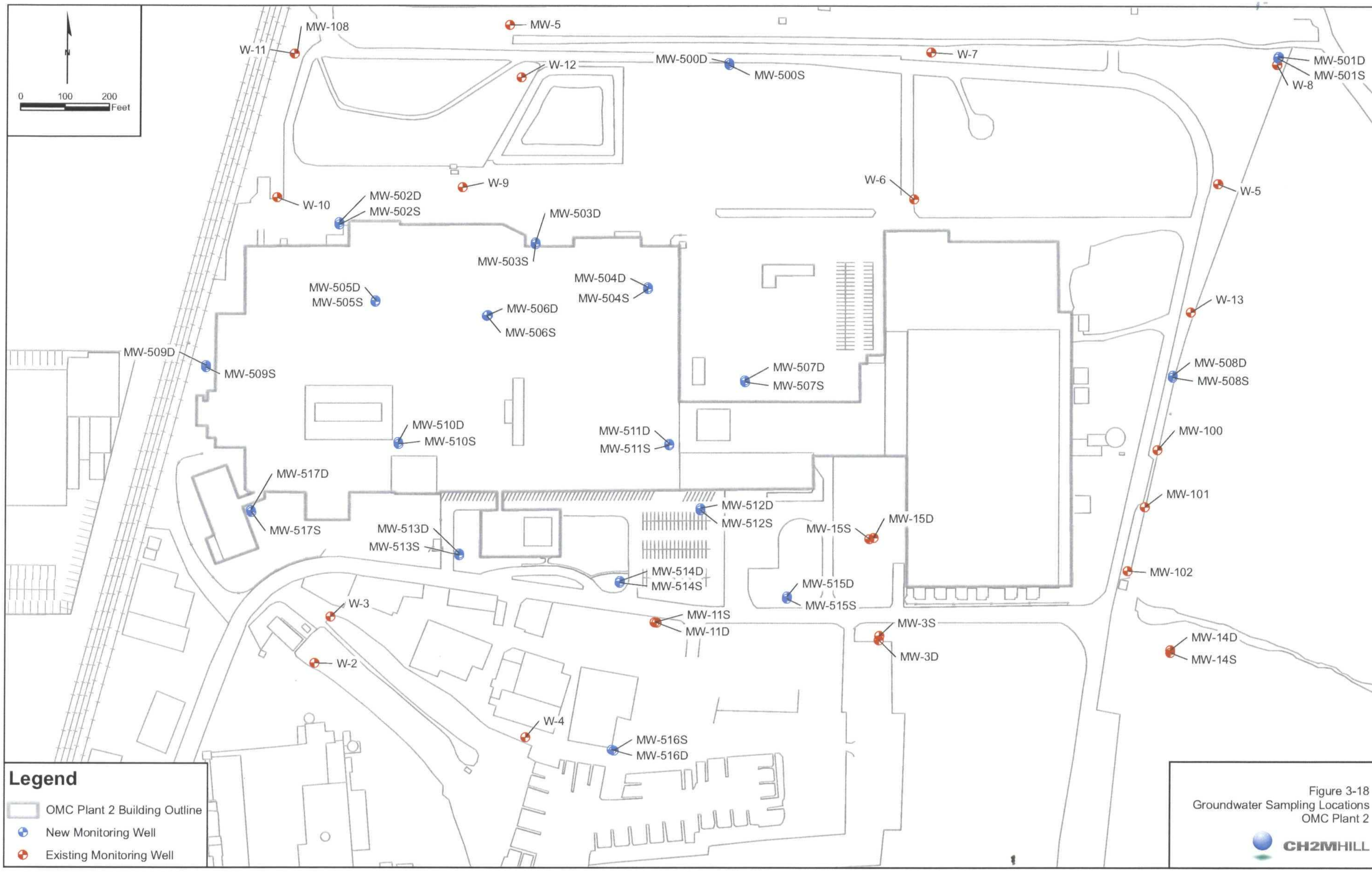

Figure 3-18
Groundwater Sampling Locations
OMC Plant 2

CH2MHILL

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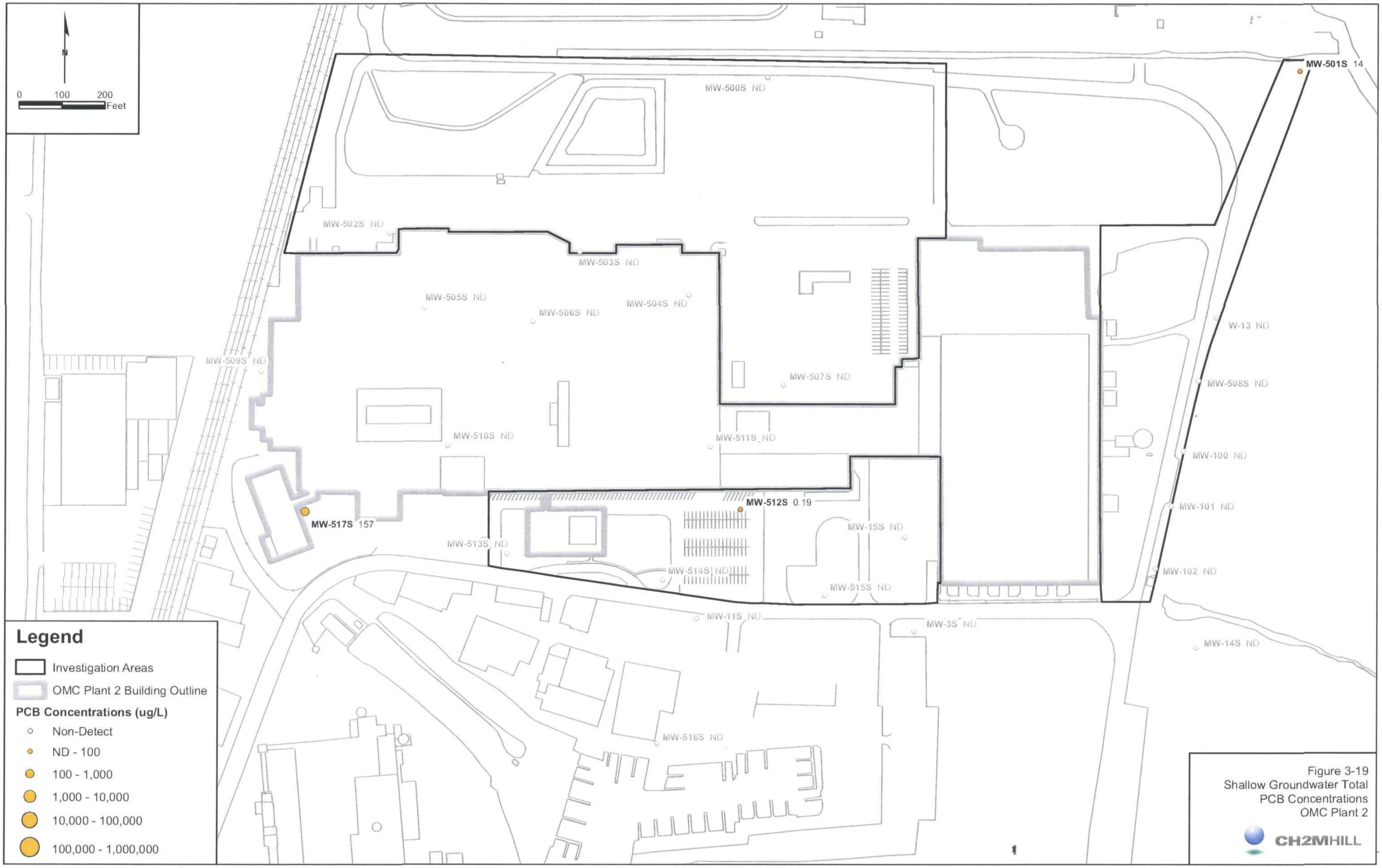

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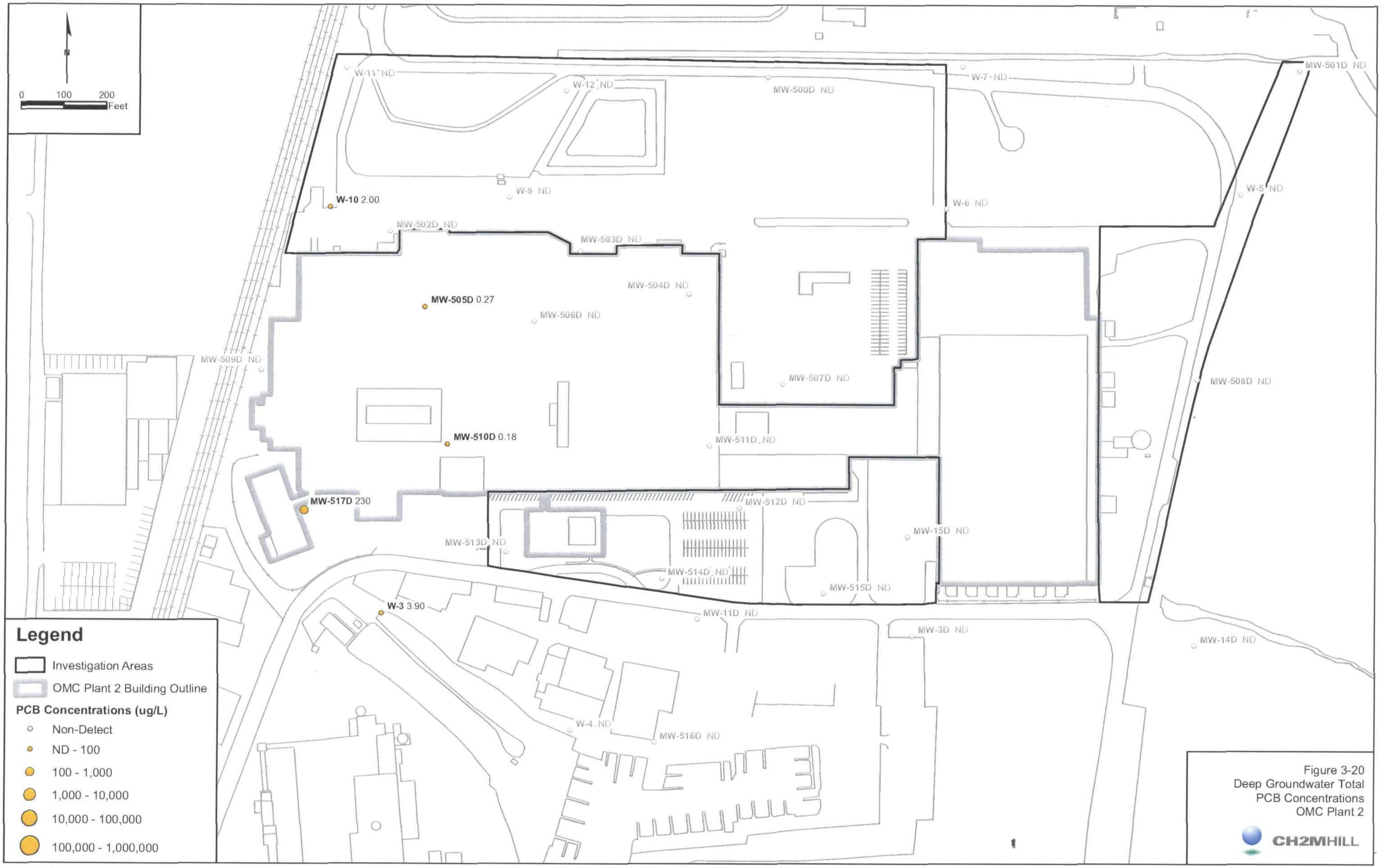

Figure 3-20
Deep Groundwater Total
PCB Concentrations
OMC Plant 2

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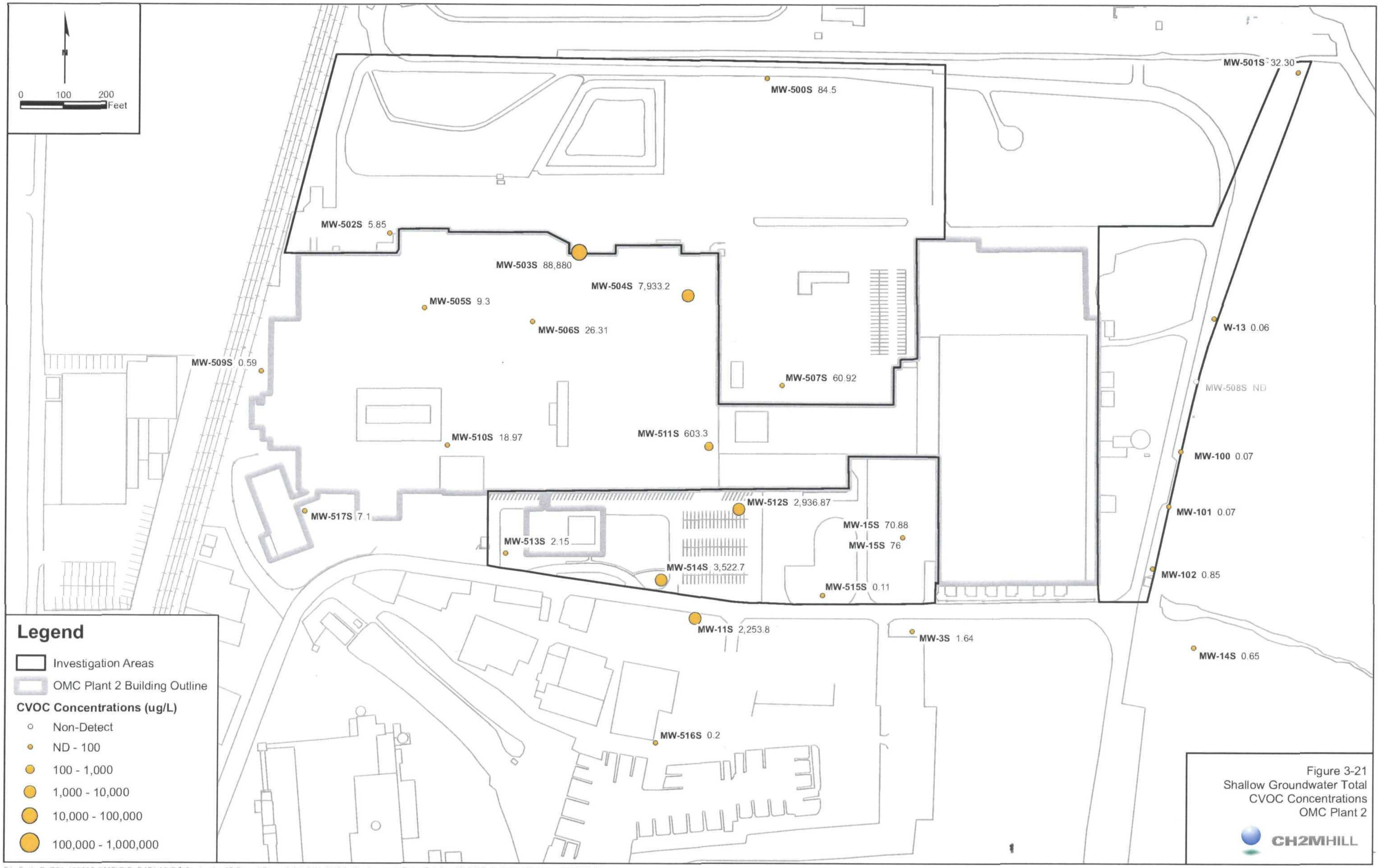

Figure 3-21
Shallow Groundwater Total
CVOC Concentrations
OMC Plant 2

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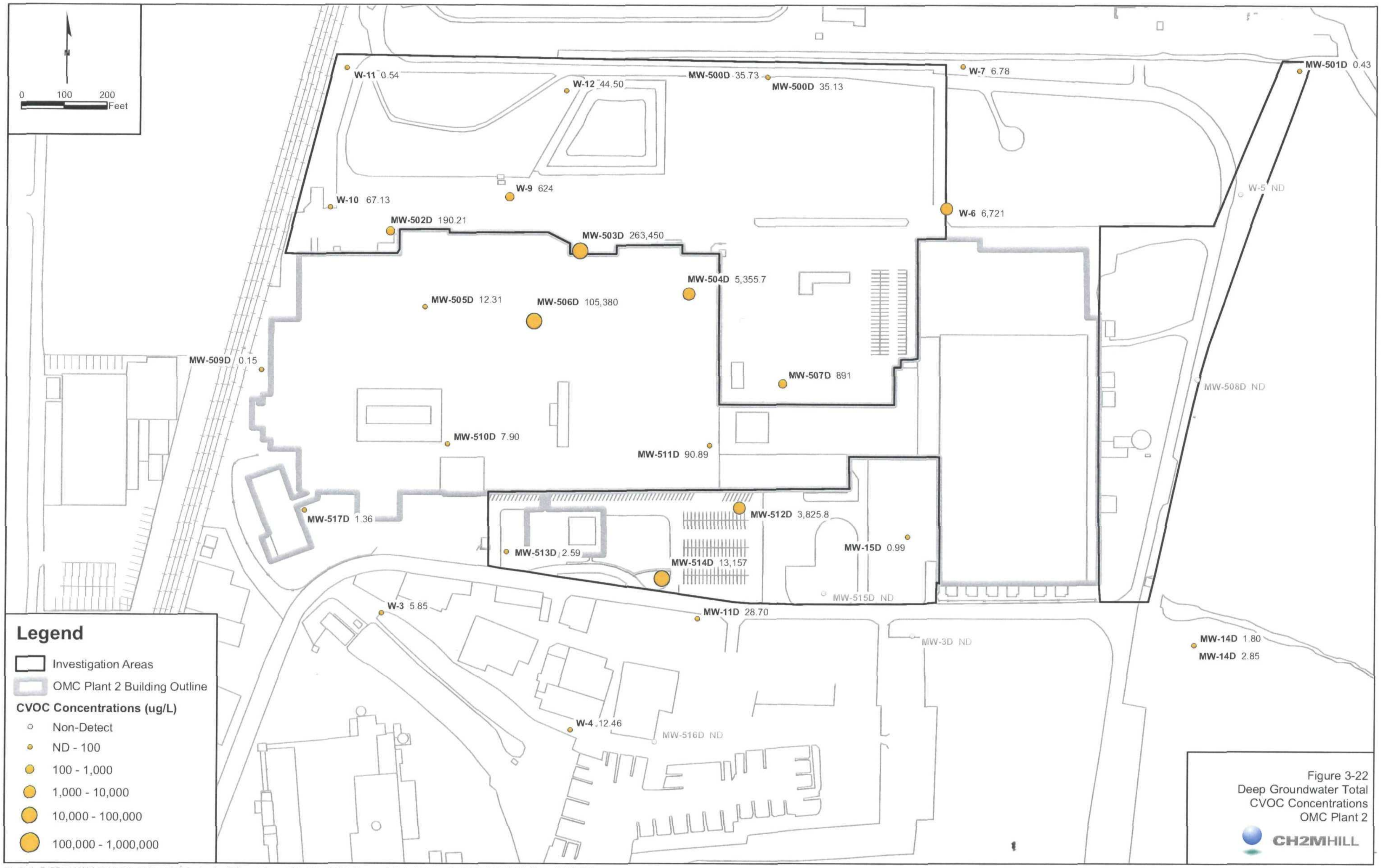

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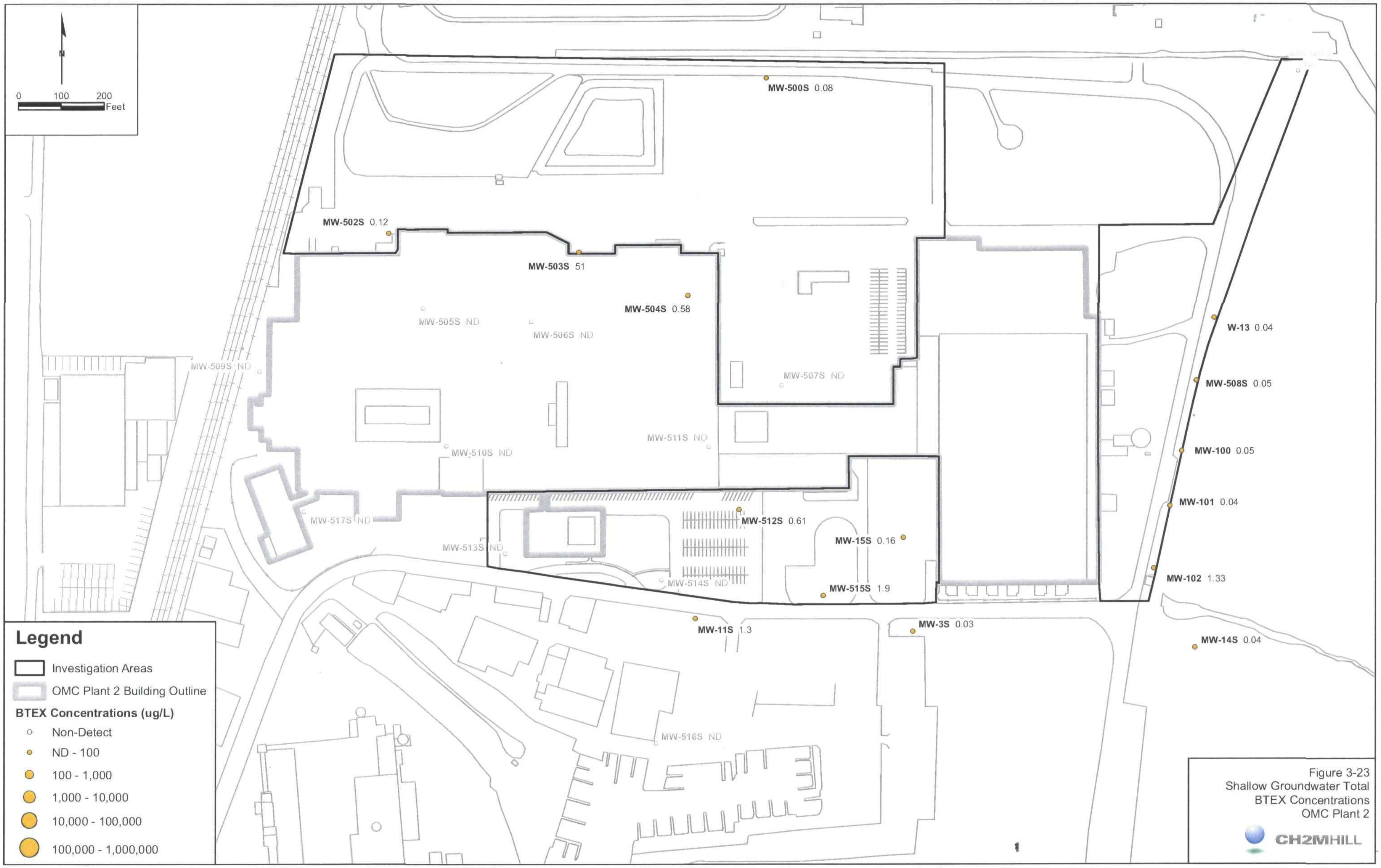

Figure 3-23
Shallow Groundwater Total
BTEX Concentrations
OMC Plant 2

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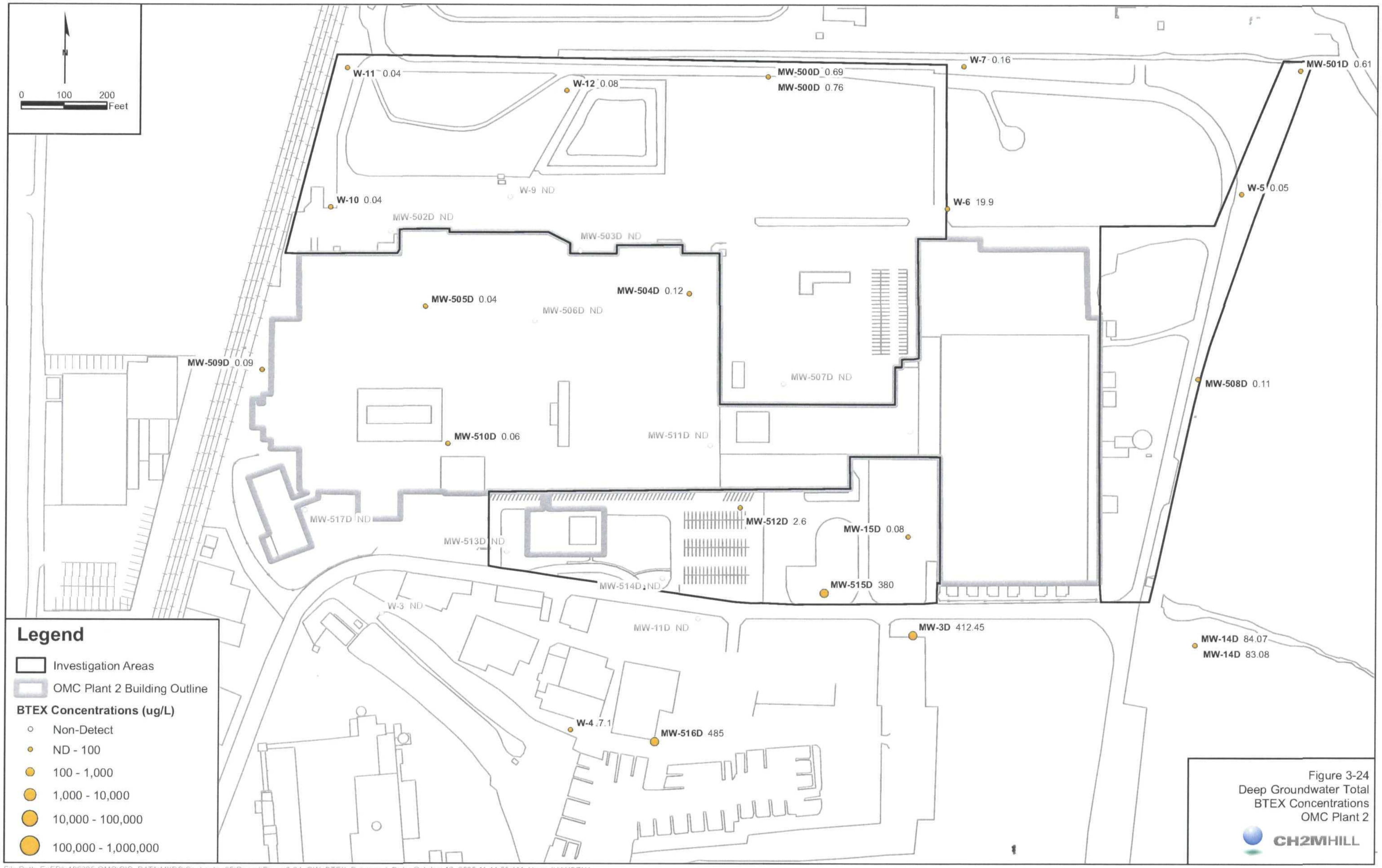

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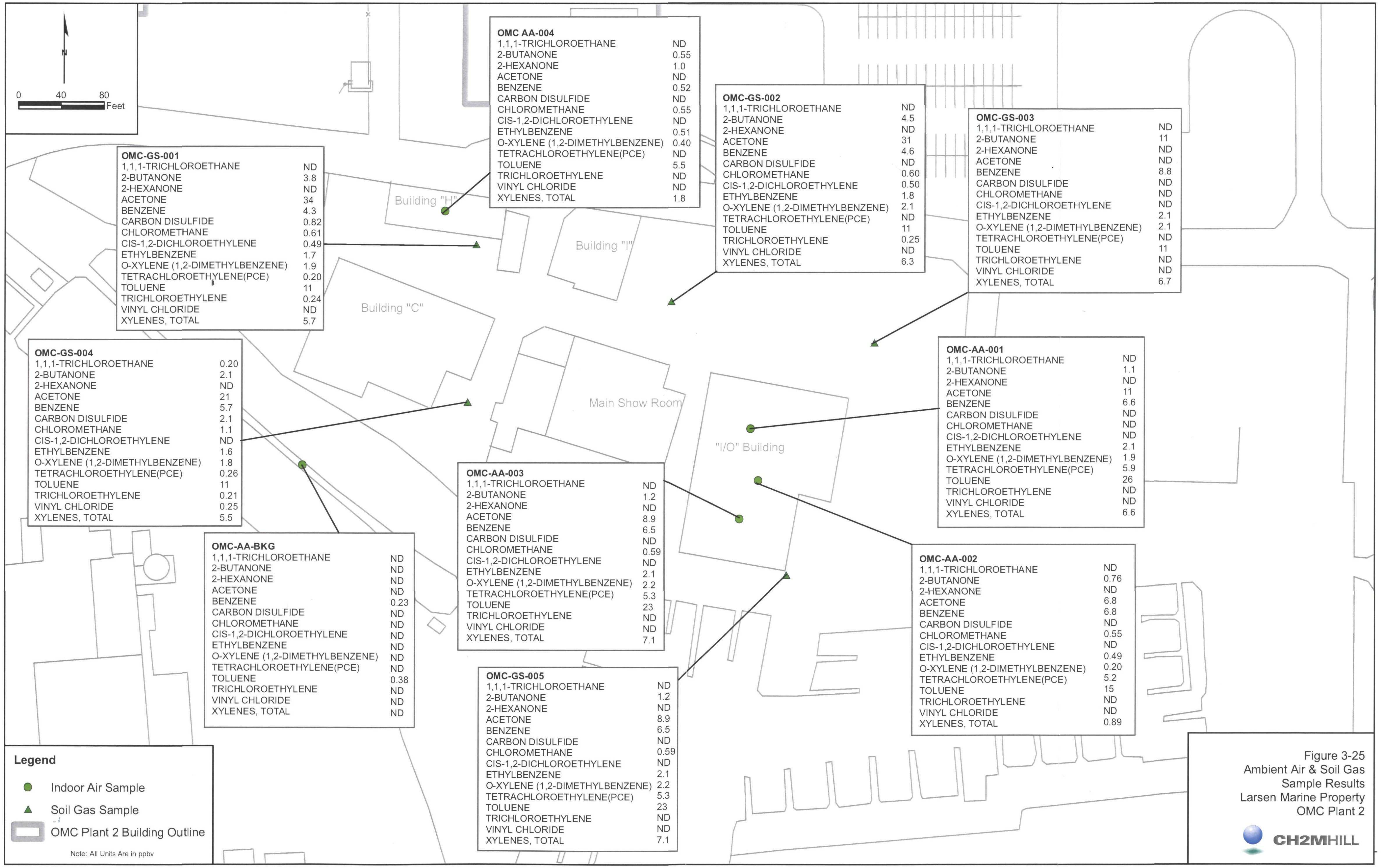

Figure 3-25
Ambient Air & Soil Gas
Sample Results
Larsen Marine Property
OMC Plant 2

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SECTION 4

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Appendix A
Lake Michigan Lakefront Study Area Reports

Appendix included on enclosed CD.

Appendix B
Investigation Technical Memorandums

Appendix included on enclosed CD.

Appendix C
Data Usability Evaluation

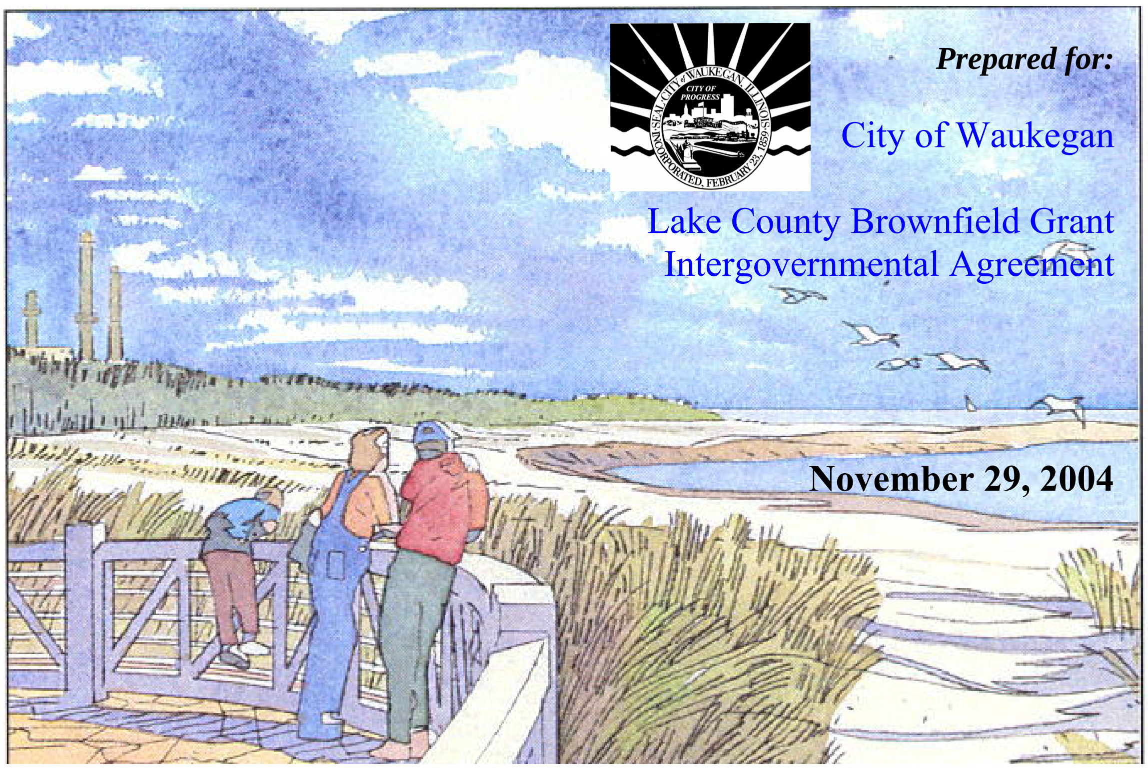
Appendix included on enclosed CD.

Appendix D
TRIAX Building Investigation

Appendix included on enclosed CD.

Environmental Site Investigation Report

Former OMC Waukegan Property
Lake Michigan Lakefront Study Area



Prepared for:

City of Waukegan

Lake County Brownfield Grant
Intergovernmental Agreement

November 29, 2004

Graphic from A 21st Century Vision for Waukegan's Downtown and Lakefront, SOM, July 2003

Prepared by:

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1.0 Background & Objectives

1.1 Prior Land Uses

The Outboard Marine Corporation (OMC) North Plant (Plant No. 2) was constructed in several phases between 1949 and 1975. The western portion of the plant was purchased by OMC from EJ&E Railroad Co. in 1948. The easternmost 47 acres of the Plant 2 property was purchased by OMC from Abbott Laboratories in 1956. A landfill area was operated by Abbott on the adjoining northwest properties that are now developed by the North Shore Sanitary District. In December 2000, OMC permanently closed its Waukegan lakefront manufacturing plants, declared bankruptcy and has not sought re-organization. Local, State and Federal government are working cooperatively to address the environmental impact left by OMC. Several areas of the North Plant property have been designated by the United States Environmental Protection Agency (USEPA) as Superfund operable units and are being investigated and/or remediated under the USEPA Superfund program. The easternmost portion of the OMC North Plant appears to have been largely undisturbed property which abuts the Lake Michigan shoreline. This approximate 13 acre land area on the easternmost side of the OMC North Plant is the subject of this report.

1.2 Objectives of Environmental Investigation

The City of Waukegan is working cooperatively with USEPA and Illinois EPA to address the abandonment of all former OMC properties on the Waukegan lakefront. The City currently has an option to acquire various parcels of the OMC North Plant and is working with the State and Federal governments to sign a Consent Decree that will allow the City to take ownership of the property and to perform certain operation & maintenance (O&M) activities at the property.

The objective of this environmental investigation was to obtain information needed to re-open public access to the Lake Michigan waterfront area of the OMC North Plant property and to establish a habitat conservation zone within the waterfront area. A possible future goal would be to have the fenced access gates on the north side of Sea Horse Drive re-located and public access established (after it can be demonstrated that the area poses no unacceptable human health and/or environmental risks). Controlled recreational use of the waterfront portion of the OMC North Plant area between the existing City Municipal Beach and the North Shore Sanitary District property may also be considered. Access to the OMC North Plant's abandoned former manufacturing, process and waste containment areas will remain restricted until such time that environmental conditions allow for safe public access, redevelopment and re-use.

An environmental site investigation was conducted to assess environmental conditions on the lakefront portion of the former OMC North Plant Property. This investigation focused on collection of data that is needed to determine if existing conditions pose a threat to human health and the environment.

The site investigation was performed for the following objectives:

- Identify and delineate potentially sensitive habitats in the study area and protect such habitats during the site investigation work.
- Test soil, sediment, and shallow groundwater in the study area for the presence of chemical constituents.
- Evaluate the levels of chemical constituents measured in soil, sediment, and groundwater samples by comparing such levels to human health risk-based standards and screening levels.
- Coordinate the findings of this focused site investigation with other related investigations and make recommendations as to future tasks leading to re-use and conservation of the lakefront study area.

1.3 Current Site Setting & Conditions

Figure 1 depicts the study area, which includes approximately 1,200 feet (ft) of waterfront. The study area is generally inaccessible from Sea Horse Drive North to the North Shore Sanitary District's southern property boundary. This lakefront property study area is approximately 13 acres.

Historically, the study area was never developed with surface structures or infrastructure. During past periods, Lake Michigan lake water levels had inundated a portion of the study area and some shoreline protection boulders are present along the west side of the study area indicating past lake water levels. Since this time, Lake Michigan water levels have retreated revealing additional beach area. Vegetation has been re-established in some areas of the lakefront parcel where wind and wave action do not impact the emergence of plant life.

Soils consist of very fine to fine native sands underlain by a silty clay till unit that extends to a depth of 110 ft. Depth to groundwater is 2 to 5 ft. below ground surface (bgs) and is highly influenced by Lake Michigan water levels. Soils encountered during the site investigation were consistently brown to gray fine sand, well sorted, loose to medium dense. Saturated sands were observed around elevations of 94.9 to 95.7 feet (site reference elevations, not USGS), based on survey stake marker information. Based on static water level measurements taken from temporary monitoring wells installed during the site investigation, the localized groundwater flow appears to be northerly.

The North Shore Sanitary District's (NSSD) secondary outfall adjoins the study area to the north and joins up with the North Ditch of the OMC Plant. Wind and wave action have shifted the NSSD outfall flow and carved a surface swale across the northeastern portion of the study area. A stormwater ditch and large swale that is beginning to develop into a wetland area also borders the southern portion of the study area east of Sea Horse Drive.

2.0 Scope of Investigation

In determining environmental conditions in the study area, a site investigation was conducted in the study area of the property as outlined herein.

2.1 Basis of Investigation

The environmental conditions on the adjoining OMC North Plant, the former Abbott landfill, the Waukegan Manufactured Gas (WMG) and Coke Plant site and the Johns-Manville site have the potential to have impacted the study area and provide a basis for this site investigation. Prior releases of hazardous substances from the OMC North Plant are documented in various references. Polychlorinated biphenyls (PCBs), heavy metals, volatile organic compounds, and various petroleum and chlorinated hydrocarbons are contaminants of concern at the OMC property. A groundwater plume emanating from the former trichloroethene (TCE) degreasing unit has been found to extend to wells immediately west of the study area.

Asbestos-containing debris has been found on certain lakefront sites, including Illinois Beach State Park, the Midwest Generation fishing pier area and properties in the vicinity of the Johns-Manville Superfund site located north of the subject property.

A groundwater plume emanating from the former WMG & Coke Plant site has documented groundwater impact at monitoring wells in the Municipal beach area immediately south of the study area. Groundwater constituents of concern from the former WMG & Coke Plant site include arsenic, nitrates, sulfates, ammonia, cyanide, phenols, and thiocyanate.

2.2 Reconnaissance for Habitat Identification, Delineation & Protection

As a first step in the site investigation, a land surveyor staked a 100 ft. rectangular grid system across the Study Area. A terrestrial ecologist then conducted a site walk over during the week of 23 July 2004. A systematic reconnaissance survey was used by the ecologist to identify and map potential sensitive habitats, wetlands, and biota. Field flagging was utilized to delineate such areas. The flagging were also used as visual barriers for the subsequent Geoprobe rig and sampling personnel, thereby serving as conservation and protective habitat measures during the site investigation.

In summary, the ecologist's meander survey of the existing flora and plant communities of the OMC site (north of the Waukegan Beach area) resulted in two state endangered plant species being found and three areas of wetland communities being identified.

The study area is characterized as being a dry sand prairie/foredune community dominated by marram grass (*Amophila beviligulata*), little bluestem grass (*Schizachyrium* *scoparium*) and sand reed (*Calamovilfa longifolia*). Forb diversity is quite low with most of the species, often represented by only one or two individuals, occurring along a narrow strip on the west edge of the property. Forb diversity includes such species as butterfly weed (*Asclepias tuberosa*), horse mint (*Monadra punctata villicaulis*), beach wormwood (*Artemisia caudata*), rough blazing star (*Liatris aspera*) and old field goldenrod (*Solidago nemoralis*).

Some depressional areas within the sand prairie/ foredune community contain fairly large populations of lake shore rush (*Juncus balticus littoralis*), suggesting that these areas are nearer to the water table. However, lack of significant wetland associates in these areas did not warrant flagging these sites as wetlands to be avoided.

The two state endangered species found on the site are in this prairie community. The two species include:

- Marram grass (*Amophila breviligulata)*, the dominant grass cover, and
- Kalm's St. John's wort (*Hypericum kalmianum*).

The *Amophila*, which serves the important function of stabilizing the sand dunes, dominates the site and is found evenly dispersed in a near continuous cover across the entire area and was therefore not flagged. The *Hypericum* population is represented by 6-8 plants located in the southwest corner of the property. This population was flagged with orange pin flags to avoid disturbance.

Three wetland areas are represented by drainage ditches on the north and south edges of the property and by a small depression along the north ditch near the lakeshore. The small depression was flagged with orange pin flags to avoid disturbance. A narrow terrace along the north side of the south drainage ditch contained significant amounts of conservative wetland species (i.e., a species when observed in an area gives a high degree of confidence that the plant is from a remnant natural area) including;

- Ohio goldenrod (*Solidago ohiensis*),
- Richardson's rush (*Juncus alpinus rariflorus*),
- Prairie wedge grass (*Sphenopholis obtusata*), and
- Green twayblade orchids (*Liparis loeselii*).

The small population of green twayblade orchids was found along the north side of the south drainage ditch in the southwest corner of the property. This population was marked with orange flagging ribbon to avoid disturbance.

2.3 Site Investigation Approach

Figure 2 presents an overview of the site investigation for the study area. Tables 1 through 3 list the analytical protocol for each of the sampled matrices (i.e., soil, sediment and groundwater). Sample locations were established using field survey techniques.

2.3.1 Subsurface Soils

A grid pattern (See Figure 2) of surface and subsurface borings for soil was established. The first phase for the site investigation utilized a grid sampling interval of 200 feet. Since PCB contamination was found at concentrations above the IEPA soil remediation objectives, a second phase was conducted, which tightened the grid to focus on extent of PCB impact. In areas of poor accessibility, soil boring locations were offset slightly from the survey stakes. Field survey measurements were taken to record the boring offsets.

The first phase sampling of the site investigation was conducted between 28 and 30 July 2004. A second phase of sampling was conducted between 8 and 11 October 2004. Borings were advanced using a Geoprobe direct push sampling technique. To minimize disturbance of the surface soils and natural habitat, a small track mounted Geoprobe rig with low ground pressure pads was utilized. The macro core and related sampling equipment were decontaminated between each sample drive with distilled water and non-phosphate cleaning agent.

Composite soil samples were collected from the 0 to 3-foot and 5 to 8-foot soil intervals. The lower interval represented the interface of the groundwater/vadose zone. The composite soil samples collected during the first sampling event were analyzed for semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs) and pH. Discrete soil samples were collected at 2 and 6 feet bgs using USEPA Method 5035 Purge and Trap VOC sampling techniques. The discrete samples were analyzed for volatile organic compounds (VOCs). The composite samples collected during Phase 2 were only analyzed for PCBs.

During the soil sampling, a MinnieRae2000 photoionization detector (PID) was used to field screen for potential VOCs. Soils were classified by a field geologist, and logs were prepared to document the subsurface soil conditions (see Attachment B). Upon completion of each soil boring, bentonite chips were placed into the borehole up to surrounding grade. If any soil boring was offset from the original survey stake, measurements were recorded on the logs to document the modified locations.

Table 1 summarizes the sample grid locations and lists the analytical protocol for soil samples collected during both phases of the Site Investigation.

Table 1—Soil Sampling and Analysis Plan

Soil Probe Sample	**Sample Depth (ft bgs)**	**Grid Location**	**Lab Parameters**
S-01	0-3 and 5-8	E000, N200	PCBs, Metals, SVOCs, VOCs, pH
S-02	0-3 and 5-8	E200, N200	PCBs, Metals, SVOCs, VOCs, pH
S-03	0-3	E400, N200	PCBs, Metals, SVOCs, VOCs, pH
S-04	0-3 and 5-8	E000, N400	PCBs, Metals, SVOCs, VOCs, pH
S-05	0-3 and 5-8	E200, N400	PCBs, Metals, SVOCs, VOCs, pH
S-06	0-3	E400, N400	PCBs, Metals, SVOCs, VOCs, pH

Table 1—Soil Sampling and Analysis Plan (Continued)

Soil Probe Sample	Depth (ft bgs)	Grid Location	Lab Parameters
S-07	0-3 and 5-8	E000, N600	PCBs, Metals, SVOCs, VOCs, pH
S-08	0-3 and 5-8	E200, N600	PCBs, Metals, SVOCs, VOCs, pH
S-09	0-3	E400, N600	PCBs, Metals, SVOCs, VOCs, pH
S-10	0-3 and 5-8	E000, N800	PCBs, Metals, SVOCs, VOCs, pH
S-11	0-3 and 5-8	E200, N800	PCBs, Metals, SVOCs, VOCs, pH
S-12	0-3	E400, N800	PCBs, Metals, SVOCs, VOCs, pH
S-13	0-3 and 5-8	E000, N1000	PCBs, Metals, SVOCs, VOCs, pH
S-14	0-3 and 5-8	E200, N1000	PCBs, Metals, SVOCs, VOCs, pH
S-15	0-3 and 5-8	E200, N700	PCBs
S-16	0-3 and 5-8	E200, N900	PCBs
S-17	0-3 and 5-8	E300, N800	PCBs
S-18	0-3 and 5-8	E100, N900	PCBs
S-19	0-3 and 5-8	E100, N800	PCBs
S-20	0-3 and 5-8	E100, N700	PCBs
S-21	0-3 and 5-8	E100, N600	PCBs
S-22	0-3 and 5-8	E100, N500	PCBs
S-23	0-3 and 5-8	E100, N1000	PCBs
S-24	0-3 and 5-8	E100, N1100	PCBs
S-25	0-3 and 5-8	E000, N1100	PCBs
S-26	0-3 and 5-8	E000, N900	PCBs
S-27	0-3 and 5-8	E000, N700	PCBs
S-28	0-3 and 5-8	E000, N500	PCBs

2.3.2 Sediments

During the first round of sampling, sediment samples were collected as part of the site investigation at approximate 200-feet station intervals (Figure 2) along a north and south drainage ditch. This sediment sampling was conducted on 29 July 2004. Phase 2 sediment sampling was conducted on 11 October 2004, with samples located between Phase 1 sample locations, resulting in an approximate 100-foot station interval throughout both ditches. A total of nine sediment samples were collected along the north ditch and five sediment samples were collected along the south ditch. Stainless steel sampling tools were used to obtain sediments from the sediment surface to approximately 6-inches. The sampling tools were decontaminated with distilled water and non-phosphate cleaning agent between each sampling station. The sediment samples analyzed for SVOCs, metals, PCBs and pH. Two sediment samples were also analyzed for total organic carbon content (TOC). Table 2 summarizes the sediment sample locations and analytical protocol used in the Site Investigation.

Table 2--Sediment Sampling & Analysis Plan

Sediment Sample	Location/Station Interval	Lab Parameters
North Ditch		
N-sed-01	Confluence of OMC N. Ditch and NSSD Outfall	PCBs, Metals, SVOCs, pH, Total Organic Carbon
N-sed-02	+200 ft. Southeast	PCBs, Metals, SVOCs
N-sed-03	+200 ft. Southeast	PCBs, Metals, SVOCs
N-sed-04	+200 ft. Southeast	PCBs, Metals, SVOCs
N-sed-05	+200 ft. Southeast	PCBs, Metals, SVOCs
N-sed-06	+100 ft. West of N-sed-01	PCBs, arsenic, SVOCs
N-sed-07	+100 ft. Southeast of N-sed-01	PCBs, arsenic, SVOCs
N-sed-08	+100 ft. Southeast of N-sed-03	PCBs, arsenic, SVOCs
N-sed-09	+100 ft. Southeast of N-sed-04	PCBs, arsenic, SVOCs
South Ditch		
S-sed-01	Outfall East of Sea Horse Dr.	PCBs, Metals, SVOCs, pH, TOC
S-sed-02	+ 200 ft. East	PCBs, Metals, SVOCs
S-sed-03	+200 ft. East	PCBs, Metals, SVOCs
S-sed-04	+100 ft. East of S-sed-02	PCBs, arsenic, SVOCs
S-sed-05	+100 ft. East of S-sed-01	PCBs, arsenic, SVOCs

2.3.3 Shallow Groundwater

During the first round of sampling investigation, three of the Geoprobe soil boring locations were constructed as shallow monitoring wells. All three of the wells were installed on 29 July 2004. During the follow-up sampling investigation, an additional Geoprobe soil boring locations was constructed as a shallow monitoring well. This well was installed on 11 October 2004. Stainless steel well screens equipped with well points were installed using the Geoprobe equipment. The slotted screens had 3-foot lengths and 1.5-inch outside diameters. The riser pipe was also composed of stainless steel having 1.5-inch diameters. The well screen bottom depths were all placed to 10 feet bgs. Steel locking flush-mount well protectors were placed around each monitor wellhead. A concrete pad (collar) was placed around each protector.

On 30 July 2004, the three wells (MW-1, MW-2, and MW-3) were developed using hand bailer methods, removing groundwater until stabilized conditions occurred. Prior to development, static water levels were obtained at each well. Water level measurements were compared with the survey stake elevations located adjacent to each well. Clean disposable 0.75-inch diameter polyurethane bailers were used to obtain the groundwater samples immediately after each well static water levels stabilized. On 11 October 2004, all four monitoring wells were developed following the same procedures. During both rounds of sampling, the groundwater samples were analyzed for VOCs, metals, cyanide, ammonia, phenols, nitrates, pH, thiocyanate, and specific conductance (SC). Insufficient sample volume was recovered from MW-1 during the second round of sampling, thus this sample was analyzed for VOCs only.

Table 3 summarizes the groundwater sampling and analytical protocol used for the Site Investigation. Figure 2 shows the well locations.

Table 3—Groundwater Sampling & Analysis Plan

Well Designation/Location	Lab Parameters
MW-01 (North; E200, N1000)	VOCs, metals, pH, SC, thiocyanate, cyanide, ammonia, phenols, nitrates; VOCs only during 2nd round of sampling
MW-02 (Southwest; E100, N100)	VOCs, metals, pH, SC, thiocyanate, cyanide, ammonia, phenols, nitrates
MW-03 (Central East; E400, N400)	VOCs, metals, pH, SC, thiocyanate, cyanide, ammonia, phenols, nitrates
MW-04 (Central; E200, N600)	VOCs, metals, pH, SC, thiocyanate, cyanide, ammonia, phenols, nitrates

2.3.4 Reconnaissance for Asbestos Debris

Throughout the course of the investigation, the study area was examined for surface and near surface debris and potential asbestos-containing material (ACM). In the event that suspect materials were identified, samples would have been collected and laboratory tested for asbestos content by polarized light microscopy (PLM). During the Site Investigation, no ACMs were observed. Therefore, no samples were collected for PLM analysis.

2.3.5 Data Quality Objectives

Sampling protocols and laboratory methods followed IEPA and USEPA-approved methods. Illinois EPA practical quantitation limits (PQLs) established under the Illinois Site Remediation Program and TACO regulations were used by the laboratory. Laboratory analysis was conducted by an Illinois EPA-accredited laboratory, STL Laboratories, Inc. of University Park, Illinois.

3.0 Report of Findings of Site Investigation

Results of sampling and analysis of chemical data were assessed through comparison with IEPA published risk-based remediation objectives. The IEPA Tiered Approach to Cleanup Objectives (TACO) in 35 IAC Part 742, Tier I for residential settings was used for soil and sediment data comparison. The Class I groundwater remediation objectives were used in comparing the shallow groundwater data. In addition, IEPA sediment quality guidelines were used in comparing the sediment results.

3.1 Subsurface Soils Data/Findings

The first round of soil analytical data indicated that no SVOCs were detected above the Tier I soil remediation objectives (SROs). The metals concentrations were within the accepted IEPA background range for metropolitan areas. Exceedances of PCBs above the Tier I SRO (1 mg/kg) were documented at locations S-07, S-10, S-1, S-13, S-18, S-19, S-29, S-23, S-25, S-26, and S-27. The PCB concentrations ranged from 1.6 to 730 mg/kg. The highest concentrations were found in the northwest corner of the site near the OMC North Ditch and the eastern OMC PCB containment cell. Figure 2 depicts these PCB impacted areas. High PCB concentrations at boring locations S-23 and S-25 are most noteworthy. Table 4 summarizes the PCB analytical results which exceed the IEPA Tier 1 residential standard.

Table 4
Soil Data Compared to TACO Tier 1 Soil Remediation Objectives
All concentrations in mg/kg

Sample ID	Chemical Compound Exceeding IEPA SRO	Measured Concentration (mg/kg)	IEPA Tier 1 Residential Soil Remediation Objective (SRO)
S-7 (0-3 ft)	Aroclor 1248	1.7	1
S-10 (0-3 ft)	Aroclor 1248	2.5	1
S-11 (5-8 ft)	Aroclor 1242	1.6	1
S-13 (0-3 ft)	Aroclor 1242	2.8	1
S-18 (0-3 ft)	Aroclor 1248	1.2	1
S-18 (5-8 ft)	Aroclor 1248	1.2	1
S-19 (5-8 ft)	Aroclor 1248	1.8	1
S-20 (5-8 ft)	Aroclor 1248	2	1
S-23 (5-8 ft)	Aroclor 1248	**280**	1
S-25 (0-3 ft)	Aroclor 1248	**730**	1
S-25 (5-8 ft)	Aroclor 1248	**690**	1
S-26 (0-3 ft)	Aroclor 1248	2.1	1
S-26 (5-8 ft)	Aroclor 1248	8.1	1
S-27 (0-3 ft)	Aroclor 1248	9.8	1

3.2 Sediment Data/Findings

The analytical results for sediment samples document elevated PCB concentrations at the north drainage ditch locations SED-01, SED-04, SED-06, and SED-07, with concentrations ranging from 1.5 mg/kg to 12 mg/kg. These levels exceed the IEPA Tier I SRO. Slightly elevated levels of one SVOC, benzo(a)pyrene, was documented at locations SED-01, SED-06, and SED-07, with concentrations ranging from 0.15 mg/kg to 0.35 mg/kg. Although this SVOC was above the Tier I SRO, it was below the IEPA's published background level. The metal arsenic was found to have a slightly elevated concentration of 15 mg/kg at location SED-02, with higher concentrations at upstream locations SED-06 (160 mg/kg) and SED-07 (31 mg/kg). This metal exceeded both the Tier 1 SRO and the IEPA background level. The highest concentrations of all elevated constituents were measured in SED-06, which is the most upstream sample and is closest to the former OMC North Plant discharge. No constituents exceeded Tier I SRO at locations SED-05, SED-08, and SED-09. The summary of sediment results are shown on Table 5. The north drainage ditch sediment sample results were also compared to the

IEPA ecological sediment quality standards. The concentrations of PCBs, arsenic and PAHs were also above these standards, and are shown on Table 6.

For the south drainage ditch sediment samples, the analytical results documented elevated PCB concentrations at SED-01, SED-02, SED-04, and SED-05. The PCB concentrations ranged from 5.8 mg/kg ast SED-01 to 150 mg/kg at SED-02. These concentrations exceed the Tier I SRO. The metal arsenic exceeded the Tier I SRO and IEPA background with a concentration of 22 mg/kg at SED-02 and 37 mg/kg at SED-05. At SED-02, lead exceeded the IEPA background, having a concentration of 39 mg/kg. This concentration; however, does not exceed the Tier I SRO. Five SVOCs were detected having concentrations above the Tier I SRO; however, they did not exceed or only slightly exceeded the IEPA background levels. These SVOCs included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(ah)anthracene, and indeno(1,2,3-cd)pyrene. Dibenzo(a,h)anthracene and benzo(b)fluoranthene slightly exceeded background at SED-05. No exceedances were found in SED-03, the most downstream sample location. These results are shown on Table 5. The results of the south drainage ditch sediment samples were also compared to the IEPA ecological sediment quality standards for PCBs, arsenic, copper, and PAHs. These results are shown on Table 6.

Table 5
Sediment Data Compared to TACO Tier 1 Soil Remediation Objectives
All concentrations in mg/kg

Sample ID	Chemical Compound Exceeding IEPA SRO	Measured Concentration	IEPA Tier 1 Residential Soil Remediation Objective	IEPA Background (within MSA)
North SED-01	Aroclor 1248	4.6	1	--
	Benzo(a)pyrene	0.16	0.09	2.14
North SED-02	Arsenic	15	--	13
North SED-04	Aroclor 1248	1.5	1	--
North SED-05	No constituents exceed Tier 1 SRO			
North SED-06	Aroclor 1016	3.5 U	1	--
	Aroclor 1221	3.5 U	1	
	Aroclor 1232	3.5 U	1	
	Aroclor 1242	3.5 U	1	
	Aroclor 1248	12	1	
	Arcolor 1254	3.5 U	1	
	Aroclor 1260	3.5 U	1	
	Arsenic	160	--	13
	Benzo(a)pyrene	0.35	0.09	2.14
North SED-07	Aroclor 1248	1.7	1	
	Arsenic	31	--	13
	Benzo(a)pyrene	0.15	0.09	2.14
North SED-08	No constituents exceed Tier 1 SRO			
North SED-09	No constituents exceed Tier 1 SRO			

Table 5 (continued)
Sediment Data Compared to TACO Tier 1 Soil Remediation Objectives
All concentrations in mg/kg

Sample ID	Chemical Compound Exceeding IEPA SRO	Measured Concentration	IEPA Tier 1 Residential Soil Remediation Objective	IEPA Background (within MSA)
South SED-01	Aroclor 1248	5.8	1	--
	Benzo(a)pyrene	0.14	0.09	2.14
South SED-02	Aroclor 1016	22 U	1	--
	Aroclor 1221	22 U	1	--
	Aroclor 1232	22 U	1	--
	Aroclor 1242	22 U	1	--
	Aroclor 1248	150	1	--
	Arcolor 1254	22 U	1	--
	Aroclor 1260	22 U	1	--
	Arsenic	22	--	13
	Benzo(a)pyrene	0.92	0.09	2.14
	Benzo(b)fluoranthene	1.5	0.9	2.05
	Dibenzo(ah)anthracene	0.11	0.09	0.422
	Lead	39	400	36
South SED-03	No constituents exceed Tier 1 SRO			
South SED-04	Aroclor 1016	2.1 U	1	--
	Aroclor 1221	2.1 U	1	--
	Aroclor 1232	2.1 U	1	--
	Aroclor 1242	2.1 U	1	--
	Aroclor 1248	8.7	1	--
	Arcolor 1254	2.1 U	1	--
	Aroclor 1260	2.1 U	1	--
	Benzo(a)pyrene	0.2	0.09	2.14
South SED-05	Aroclor 1016	14 U	1	--
	Aroclor 1221	14 U	1	--
	Aroclor 1232	14 U	1	--
	Aroclor 1242	14 U	1	--
	Aroclor 1248	76	1	--
	Arcolor 1254	14 U	1	--
	Aroclor 1260	14 U	1	--
	Arsenic	37	--	13
	Benzo(a)anthracene	1.6	0.9	1.84
	Benzo(a)pyrene	1.7	0.09	2.14
	Benzo(b)fluoranthene	2.6	0.9	2.05
	Dibenzo(a,h)anthracene	0.47	0.09	0.422
	Indeno(1,2,3-cd)pyrene	1.3	0.9	1.552

NA = Not available.
MSA=Metropolitan Statistical Area
U = Not detected above method detection limit. Elevated detection limits are reported due to high concentrations of other Aroclors.
-- = Not available.

Table 6
Sediment Data Compared to IEPA Sediment Quality Guidelines
All concentrations in mg/kg

Sample ID	Chemical Compound Exceeding IEPA Sediment Quality Guideline	Measured Concentration (mg/kg)	IEPA Provisional Classification: Non-elevated	IEPA Provisional Classification: Highly Elevated	IEPA Baseline Sediment Cleanup Objectives for Petroleum Product Releases
North SED-01	Aroclor 1248	4.6	<0.01	0.48	--
	Arsenic	12	7.2	18	--
	Benzo(a)pyrene	0.16	--	--	0.073
North SED-02	Aroclor 1248	0.90	<0.01	0.48	--
	Arsenic	15	7.2	18	--
North SED-03	Aroclor 1248	0.56	<0.01	0.48	--
	Arsenic	9.7	7.2	18	--
North SED-04	Aroclor 1248	1.5	<0.01	0.48	--
	Arsenic	18	7.2	18	--
North SED-06	Anthracene	0.099			
	Aroclor 1248	12	<0.01	0.48	--
	Arsenic	160	7.2	18	--
	Benzo(a)anthracene	0.39	--	--	0.287
	Benzo(a)pyrene	0.35	--	--	0.073
	Chyrsene	0.45	--	--	0.400
	Fluorene	0.059	--	--	0.035
	Pyrene	0.78	--	--	0.350
North SED-07	Aroclor 1248	1.7	<0.01	0.48	--
	Arsenic	31	7.2	18	--
	Benzo(a)pyrene	0.15	--	--	0.073
North SED-08	Aroclor 1248	0.70	<0.01	0.48	--
	Arsenic	13	7.2	18	--
North SED-09	Aroclor 1248	0.068	<0.01	0.48	--
	Arsenic	6.7	7.2	18	--

Table 6 (continued)
Sediment Data Compared to IEPA Sediment Quality Guidelines
All concentrations in mg/kg

Sample ID	Chemical Compound Exceeding IEPA Sediment Quality Guideline	Measured Concentration (mg/kg)	IEPA Provisional Classification: Non-elevated	IEPA Provisional Classification: Highly Elevated	IEPA Baseline Sediment Cleanup Objectives for Petroleum Product Releases
South SED-01	Aroclor 1248	5.8	<0.01	0.48	--
	Arsenic	11	7.2	18	--
	Benzo(a)pyrene	0.14	--	--	0.073
South SED-02	Aroclor 1248	150	<0.01	0.48	--
	Arsenic	22	7.2	18	--
	Benzo(a)anthracene	0.53	--	--	0.287
	Benzo(a)pyrene	0.92	--	--	0.073
	Benzo(b)fluoranthene	1.5	--	--	0.886
	Chrysene	1.1	--	--	0.4
	Copper	55	37	170	--
	Dibenzo(ah)anthracene	0.11	--	--	0.06
	Flourene	0.036	--	--	0.035
	Pyrene	1.2	--	--	0.35
South SED-03	Aroclor 1248	4.9	<0.01	0.48	--
	Benzo(a)pyrene	0.080	--	--	0.073
South SED-04	Aroclor 1248	8.7	<0.01	0.48	--
	Benzo(a)pyrene	0.2	--	--	0.073
	Pyrene	0.5	--	--	0.35
South SED-05	Anthracene	0.34	--	--	0.085
	Aroclor 1248	76	<0.01	0.48	--
	Arsenic	37	7.2	18	--
	Benzo(a)anthracene	1.6	--	--	0.287
	Benzo(a)pyrene	1.7	--	--	0.073
	Benzo(b)fluoranthene	2.6	--	--	0.886
	Chrysene	3.0	--	--	0.40
	Dibenzo(a,h)anthracene	0.47	--	--	0.06
	Fluoranthene	4.8	--	--	2.79
	Fluorene	0.21	--	--	0.035
	Phenanthrene	2.7	--	--	0.81
	Pyrene	4.2	--	--	0.35

Short, Matthew. 1997. Evaluation of Illinois Sieved Stream Sediment Data 1982-1995. IEPA, Bureau of Water. August 1997.
Only constituents positively detected at concentrations exceeding sediment guidelines are presented; no exceedance was measured at North SED-05.

3.3 Shallow Groundwater Data/Findings

The analytical results for the two rounds of groundwater samples indicate concentrations of certain metals above the IEPA Class I groundwater remediation objectives. The metals commonly exceeding these objectives included arsenic, barium, chromium, iron, lead, manganese, nickel, vanadium and zinc. These results are shown on Table 7.

Table 7
Groundwater Compared to TACO Class I Groundwater Remediation Objectives
All concentrations in mg/L

Sample ID	Chemical Compound Exceeding Class I Groundwater Remediation Objective	Round 1 Measured Concentration	Round 2 Measured Concentration	Class I Groundwater Remediation Objective
MW-01	Barium	4	NA	2
	Chromium	0.35	NA	0.1
	Iron	86	NA	5
	Lead	0.24	NA	0.0075
	Manganese	2.6	NA	0.15
	Nickel	0.17	NA	0.1
	Vanadium	0.077	NA	0.049
	Zinc	29	NA	5
	Thiocyanate	<0.1	NA	--
MW-02	Arsenic	0.074	0.11	0.05
	Chromium	0.43	0.12	0.1
	Iron	43	28	5
	Lead	0.32	0.15	0.0075
	Manganese	1.1	0.67	0.15
	Nickel	0.2	< GRO	0.1
	Zinc	25	14	5
	Thiocyanate	<0.1	<0.10	--
MW-03	Chromium	0.11	< GRO	0.1
	Iron	38	24	5
	Lead	0.18	0.15	0.0075
	Manganese	0.92	0.6	0.15
	Zinc	21	15	5
	Thiocyanate	<0.1	<0.10	--
MW-04	Cadmium	NA	0.006	0.005
	Chromium	NA	0.22	0.1
	Iron	NA	44	5
	Lead	NA	0.073	0.0075
	Manganese	NA	1.8	0.15
	Nickel	NA	0.17	0.1
	Thiocyanate	<0.1	<0.10	--

Round 1 samples collected 30 July 2004.
Round 2 samples collected 11 October 2004.
< Detected concentration below groundwater remediation objective (GRO).
NA - Not analyzed; sufficient sample volume not available for collection.
-- = No groundwater remediation objective available.

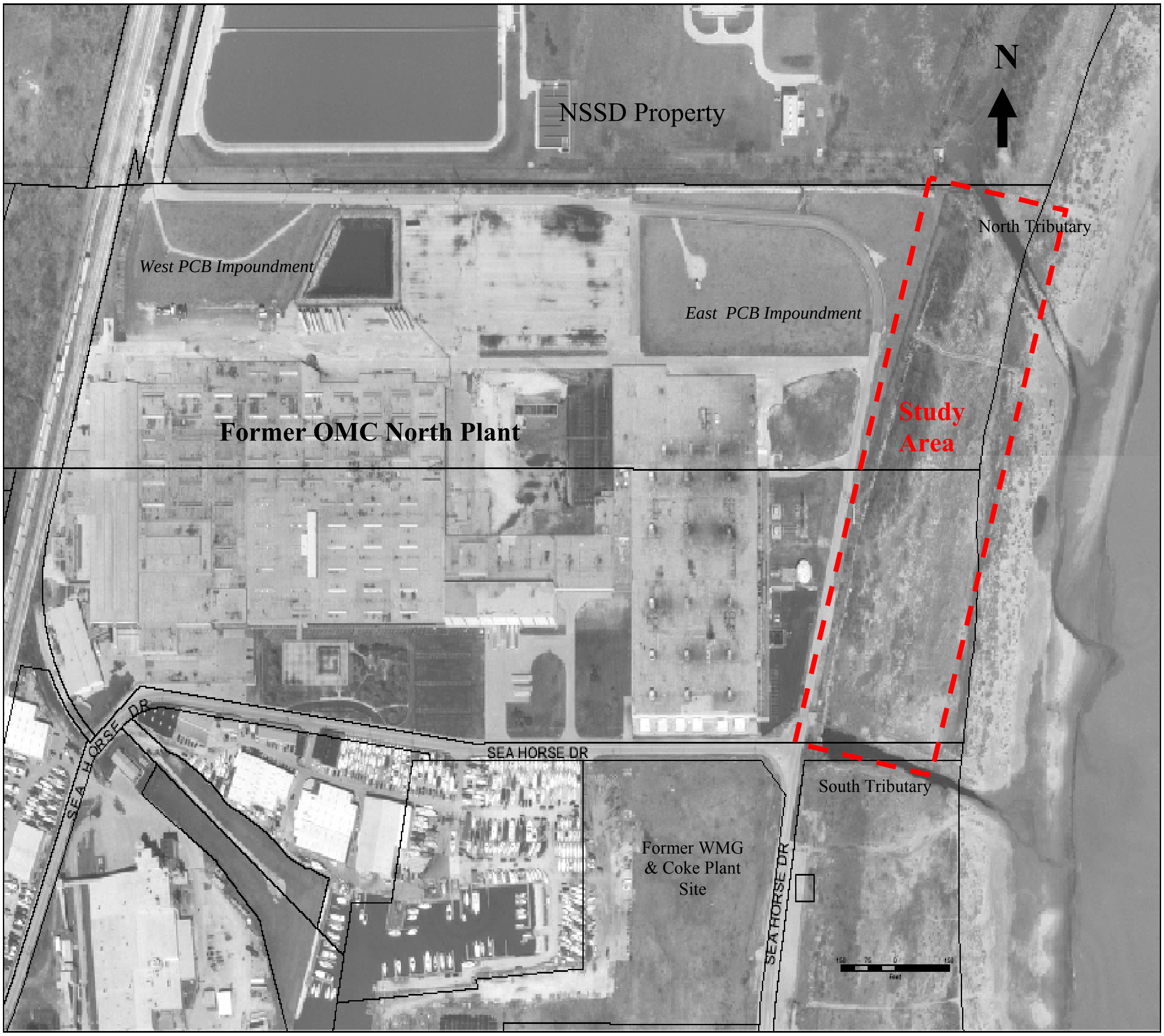
4.0 Recommendations

The results of this environmental investigation are encouraging and continue to support future use of the study area east of the OMC North Plant for conservation open space, passive recreational use, and natural habitat development. Despite the legacy of industrial use and releases of hazardous substances from the OMC North Plant and its related Superfund Site Operable Units, the 13-acre lakefront portion of the property has remained for the most part not impacted by hazardous substance releases.

USEPA's Remedial Project Manager for the OMC Site will be informed of the presence of moderately elevated PCB and Arsenic concentrations in the North and South tributaries and high PCB concentrations in soil in the northwest corner of the property via transmittal of this report. Areas of elevated PCB concentrations have been found in soil which appears to be limited to the northwest corner of the study area and in sediments of the north and south tributaries. There is potential for direct contact with this PCB-contaminated soil and sediment and potential for migration to Lake Michigan. Soil at borings S-23 and S-25 reported PCB concentrations ranging from 280 mg/kg to 730 mg/kg in the vicinity of the eastern PCB containment cell and the previously remediated North Ditch Area. Public access to these areas should continue to be restricted until further contaminant removal and/or containment is conducted. Currently, natural vegetative and water barriers are present that may preclude access to PCBs in sediments in the north and south tributaries.

Other areas of the study area appear acceptable for planning limited public access and continued natural habitat restoration and protection consistent with the City of Waukegan's Lakefront Master Plan.

Figure 1
Environmental Investigation Study Area



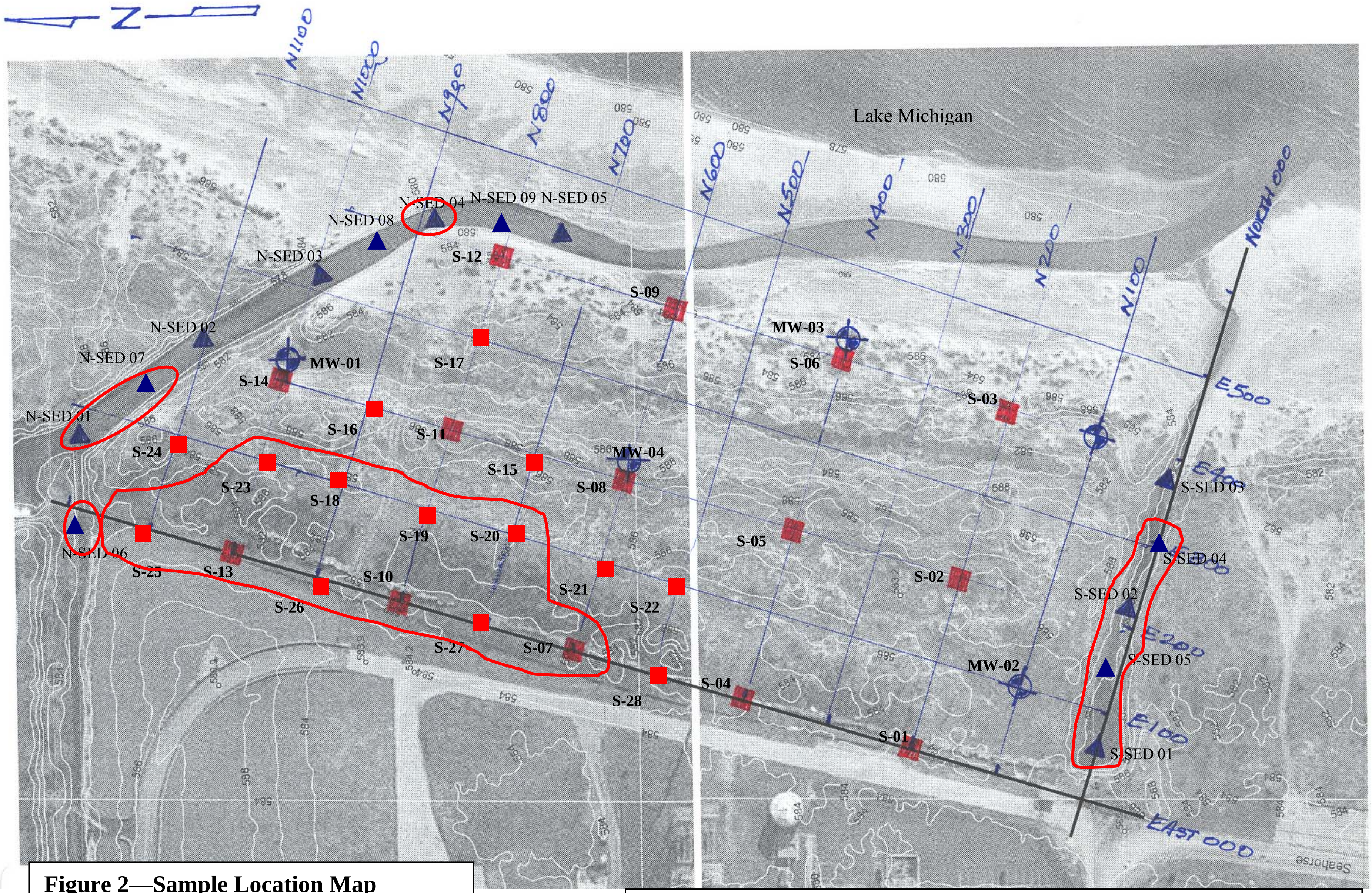


Figure 2—Sample Location Map
MW—Monitoring Well
SED—Sediment Sample
S-Soil Probe Sample Location

July 2004 and October 2004 Data:
PCB Soil Exceedances: S-7, S-10, S-11, S-13, S-18, S-19, S-20, S-23, S-25, S-26, S-27
PCB Sediment Exceedances: N-SED-01, N-SED-04, N-SED-06, N-SED-07
S-SED-01, S-SED-02, S-SED-04, S-SED-05

Appendix A

Study Area Photos

July 2004 Sediment Sampling—North Tributary

Photo of well installation work during July 2004 Site Investigation

Typical Sample Core (Above) & Habitat Protection
Survey Markers (Bottom) July 2004

Appendix B

Soil Boring/Monitoring Well Logs

Deigan & Associates

BORING NUMBER **SP- 01**

PROJECT	OMC Lakefront Study	PROJECT NO.	
LOCATION	Waukegan, Illinois	BOREHOLE DIA.	2 inches
TOTAL DEPTH	8 ft.	DEPTH TO WATER	None Observed
TOC ELEV.	N/A	DRILLING METHOD	Geo-Probe
COMPANY	CS Drilling	DATE DRILLED	July 28, 2004
DRILLER		GEOLOGIST	Kerry Van Allen
LOCATION	E00, N200		

COMMENTS Offset approximately 10 feet west, outside fence.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, occasional pebbles, well sorted, loose, dry to damp. PID = ND	■	SP
4			As above, becoming gray, wet below 4.5 feet bgs. PID = ND	■	SP
8					

Collect soil samples from 0 to 3' / 5 to 7' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

Legend					
▨	SILTY CLAY	☐	Organic topsoil	■	SILT
■	SANDY CLAY	☐	SAND		

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 02

PROJECT OMC Lakefront Study
LOCATION Waukegan, Illinois
TOTAL DEPTH 8 ft.
TOC ELEV. N/A
COMPANY CS Drilling
DRILLER
LOCATION E200, N200
COMMENTS

PROJECT NO.
BOREHOLE DIA. 2 inches
DEPTH TO WATER None Observed
DRILLING METHOD Geo-Probe
DATE DRILLED July 28, 2004
GEOLOGIST Kerry Van Allen

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, damp to moist. PID = ND		SP
2					
4			Gray fine sand, well sorted, medium dense, wet. PID = ND		SP
6					
8					
10					
12					
14					
16					
18					
20					

Collect soil samples from 0 to 3' / 5 to 8' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Legend: SILTY CLAY, SANDY CLAY, Organic topsoil, SAND, SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

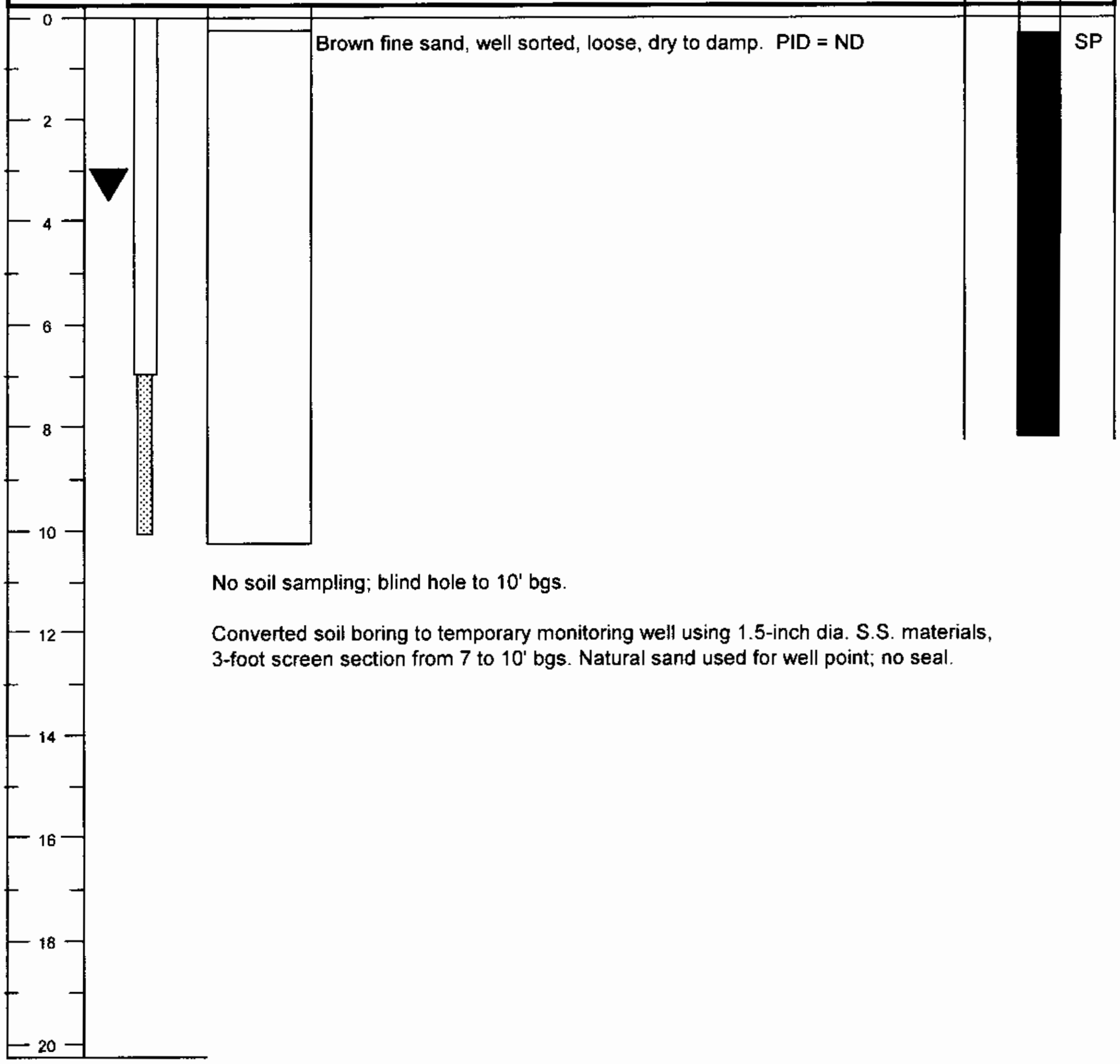
Deigan & Associates

BORING NUMBER MW- 02

PROJECT OMC Lakefront Study
LOCATION Waukegan, Illinois
TOTAL DEPTH 10 ft.
TOC ELEV. N/A
COMPANY CS Drilling
DRILLER
LOCATION E100, N100
COMMENTS

PROJECT NO.
BOREHOLE DIA. 2 inches
DEPTH TO WATER 3.6' below concrete pad (95.75 el)
DRILLING METHOD Geo-Probe
DATE DRILLED July 29, 2004
GEOLOGIST Kerry Van Allen

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to damp. PID = ND		SP



No soil sampling; blind hole to 10' bgs.

Converted soil boring to temporary monitoring well using 1.5-inch dia. S.S. materials, 3-foot screen section from 7 to 10' bgs. Natural sand used for well point; no seal.

Legend: SILTY CLAY, SANDY CLAY, Organic topsoil, SAND, SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 03

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 4 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 29, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E400, N200	
COMMENTS	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to moist. PID = ND		SP
2					
4					
6			Collect soil sample from 0 to 3' bgs (composite) for SVOCs, metals, PCBs and Ph. Collect soil sample from 2' bgs (discrete) for VOCs.		
8					
10					
12					
14					
16					
18					
20					

Legend

SILTY CLAY
SANDY CLAY
Organic topsoil
SAND
SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 04

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 8 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 28, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E00, N400	

COMMENTS Offset approximately 15 feet to the west, outside fence.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, occasional pebbles, well sorted, loose, dry to damp. PID = ND		SP
2					
4			As above, becoming gray fine sand, wet below 4.5 feet. PID = ND		SP
6					
8					
10					
12					
14					
16					
18					
20					

Collect soil samples from 0 to 3' / 5 to 7' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Legend

SILTY CLAY
SANDY CLAY
Organic topsoil
SAND
SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates **BORING NUMBER SP- 05**

PROJECT	OMC Lakefront Study	PROJECT NO.	
LOCATION	Waukegan, Illinois	BOREHOLE DIA.	2 inches
TOTAL DEPTH	8 ft.	DEPTH TO WATER	None Observed
TOC ELEV.	N/A	DRILLING METHOD	Geo-Probe
COMPANY	CS Drilling	DATE DRILLED	July 28, 2004
DRILLER		GEOLOGIST	Kerry Van Allen
LOCATION	E200, N400		
COMMENTS			

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to damp. PID = ND		SP
4			As above, becoming gray, wet below 7 feet bgs. PID = ND		SP
8					

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

Collect soil samples from 0 to 3' / 5 to 7' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Legend

SILTY CLAY	Organic topsoil	SILT
SANDY CLAY	SAND	
CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 06 / MW - 03

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 4 ft.	DEPTH TO WATER 5.7' below concrete pad (95.65 el)
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 29, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E400, N400	
COMMENTS Offset approximately 10 feet west.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, damp to moist. PID = ND		SP
2					
4					
6			Collect soil sample from 0 to 3' bgs (composite) for SVOCs, metals, PCBs and Ph. Collect soil sample from 2' bgs (discrete) for VOCs.		
8			Converted soil boring to temporary monitoring well using 1.5-inch dia. stainless steel materials, 3-foot screen section from 7 to 10' bgs. Natural sand use for well point; no seal.		
10					
12					
14					
16					
18					
20					

Legend

SILTY CLAY
SANDY CLAY
Organic topsoil
SAND
SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER **SP- 07**

PROJECT	OMC Lakefront Study	PROJECT NO.	
LOCATION	Waukegan, Illinois	BOREHOLE DIA.	2 inches
TOTAL DEPTH	8 ft.	DEPTH TO WATER	None Observed
TOC ELEV.	N/A	DRILLING METHOD	Geo-Probe
COMPANY	CS Drilling	DATE DRILLED	July 28, 2004
DRILLER		GEOLOGIST	Kerry Van Allen
LOCATION	E00, N600		

COMMENTS Offset approximately 30 feet west, outside fence.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to moist. PID = ND		SP
3			Black fine sand below 3' bgs, damp to moist. PID = ND		SP
5			As above, saturated below 6' bgs.		SP

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

Collect soil samples from 0 to 3' / 5 to 8' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Legend

SILTY CLAY	Organic topsoil	SILT
SANDY CLAY	SAND	
CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 08

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 8 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 28, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E200, N600	
COMMENTS	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to damp. PID = ND		SP
2					
4			As above, becoming gray fine sand, wet below 7.5 feet. PID = ND		SP
6					
8					
10					
12					
14					
16					
18					
20					

Collect soil samples from 0 to 3' / 5 to 7' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Legend

SILTY CLAY	Organic topsoil	SILT
SANDY CLAY	SAND	
CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 08 / MW - 04

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 9 ft.	DEPTH TO WATER Observed in borehole @ 7.5' bgs
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED October 8, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E200, N600	
COMMENTS Offset approximately 20 feet west.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, damp to moist. PID = ND		SP
4			As above, becoming wet. PID = ND		SP
7			As above, becoming saturated below 7.5 feet. PID = ND		SP

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

No soil samples collected during drilling.
Converted soil boring to temporary monitoring well using 1.5-inch dia. stainless steel materials, 3-foot screen section from 6 to 9' bgs. Natural sand use for well point; no seal.

Legend

SILTY CLAY	Organic topsoil	SILT
SANDY CLAY	SAND	
CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 09

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 4 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 29, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E400, N600	
COMMENTS	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to damp. PID = ND		SP
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					

Collect soil sample from 0 to 3' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil sample from 2' bgs (discrete) for VOCs.

Legend

SILTY CLAY
SANDY CLAY
Organic topsoil
SAND
SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 10

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 8 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 28, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E400, N400	

COMMENTS Offset approximately 30 feet west, outside fence.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, damp to moist. PID = ND		SP
			Below 1.5' bgs, dark gray to black fine sand, damp to wet. PID = ND		
2					
4			As above, saturated. PID = ND		SP
6					
8					

Collect soil samples from 0 to 3' / 5 to 7' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

10 12 14 16 18 20

Legend

SILTY CLAY
SANDY CLAY
Organic topsoil
SAND
SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 11

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 8 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 28, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E200, N800	
COMMENTS	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to moist. PID = ND		SP
4			As above, gray fine sand, saturated below 7.5' bgs.		SP
8					

Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

Collect soil samples from 0 to 3' / 5 to 8' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Legend

SILTY CLAY	Organic topsoil	SILT
SANDY CLAY	SAND	
CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 12

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 4 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 29, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E400, N800	
COMMENTS	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, damp to moist. PID = ND		SP
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					

Collect soil sample from 0 to 3' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil sample from 2' bgs (discrete) for VOCs.

Legend

SILTY CLAY
SANDY CLAY
Organic topsoil
SAND
SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP- 13

PROJECT OMC Lakefront Study	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 8 ft.	DEPTH TO WATER None Observed
TOC ELEV. N/A	DRILLING METHOD Geo-Probe
COMPANY CS Drilling	DATE DRILLED July 28, 2004
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION E00, N1000	
COMMENTS	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to damp. PID = ND		SP
2			Below 1.5', dark gray to black fine sand, damp to wet. PID = ND		
4			As above, saturated. PID = ND		SP
6					
8					
10			Collect soil samples from 0 to 3' / 5 to 8' bgs (composite) for SVOCs, metals, PCBs and Ph. Collect soil samples from 2' / 6' bgs (discrete) for VOCs.		
12					
14					
16					
18					
20					

Legend

SILTY CLAY	Organic topsoil	SILT
SANDY CLAY	SAND	
CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER SP-14 / MW- 01

PROJECT OMC Lakefront Study
LOCATION Waukegan, Illinois
TOTAL DEPTH 8 ft.
TOC ELEV. N/A
COMPANY CS Drilling
DRILLER
LOCATION E200, N1000
COMMENTS

PROJECT NO.
BOREHOLE DIA. 2 inches
DEPTH TO WATER 8.5' below concrete pad (94.92 el)
DRILLING METHOD Geo-Probe
DATE DRILLED July 28, 2004
GEOLOGIST Kerry Van Allen

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown fine sand, well sorted, loose, dry to damp. PID = ND		SP
2					
4			As above, wet below 7.5' bgs. PID = ND		SP
6					
8					
10					
12					
14					
16					
18					
20					

Collect soil samples from 0 to 3' / 5 to 7' bgs (composite) for SVOCs, metals, PCBs and Ph.
Collect soil samples from 2' / 6' bgs (discrete) for VOCs.

Converted soil boring to temporary monitoring well using 1-inch dia. PVC materials, 3-foot screen section from 7 to 10' bgs. Natural sand around well point used; no seal.

Legend: SILTY CLAY; SANDY CLAY; Organic topsoil; SAND; SILT

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Note:
Soil logs were not prepared for the 2nd Round soil sampling due to similarity of site soils determined by logging 1st round soil borings.

Appendix C

Laboratory Data Reports

2005 Investigation Results

Table 1
Amended Results of PCB Sampling in Soils—OMC Beachfront Property Area
(Amended to include May 2005 further delineation)

Sample ID	Chemical Compound Exceeding IEPA SRO of 1 mg/kg	Measured Concentration (mg/kg)	Excavation Depth Recommended	Approximate Excavation Area & Bank Measure Volume (cy)
S-7 (0-3 ft)	PCB--Aroclor 1248	1.7		
S-10 (0-3 ft)	Aroclor 1248	2.5		
S-11 (5-8 ft)	Aroclor 1242	1.6		
S-13 (0-3 ft)	Aroclor 1242	2.8		
S-18 (0-3 ft)	Aroclor 1248	1.2		
S-18 (5-8 ft)	Aroclor 1248	1.2		
S-19 (5-8 ft)	Aroclor 1248	1.8		
S-20 (5-8 ft)	Aroclor 1248	2		
S-23 (5-8 ft)	Aroclor 1248	**280**	0 to 9 ft.	40x40x9/27=533 cy
S-25 (0-3 ft)	Aroclor 1248	**730**	0 to 9 ft.	60x30x9/27=600 cy
S-25 (5-8 ft)	Aroclor 1248	**690**	0 to 9 ft.	included above
S-26 (0-3 ft)	Aroclor 1248	2.1		
S-26 (5-8 ft)	Aroclor 1248	**8.1**	4 to 9 ft.	100x20x5/27=370 cy
S-27 (0-3 ft)	Aroclor 1248	**9.8**	0 to 4 ft.	100x20x4/27=300 cy
May 2005				
S-29 (2 ft.)	PCB—Aroclor 1248	**16**	0 to 6 ft.	30x50x6/27=333 cy
S-29 (6 ft.)	Aroclor 1248	1.3		
S-30 (2 ft.)	Aroclor 1248	1.2		
S-30 (6 ft.)	Aroclor 1248	1.3		
S-31 (2 ft.)	Aroclor 1248	3.2		
S-32 (2 ft.)	Aroclor 1248	**6.2**	0 to 3 ft.	50x50x3/27=278 cy
S-34 (2 ft.)	Aroclor 1248	**14,000**	0 to 6 ft.	50x50x6/27=555 cy
S-36 (6 ft.)	Aroclor 1248	3.7		
S-37 (6 ft.)	Aroclor 1248	1.5		
S-40 (6 ft.)	Aroclor 1248	2.8		
S-41 (6 ft.)	Aroclor 1248	3.9		
S-47 (6 ft.)	Aroclor 1248	**17**	0 to 7 ft.	30x40x7/27=312 cy
			Estimated Total	**3,300 cy**

Shaded soil sample locations above having PCB levels near or above 10 mg/kg have been identified for removal consistent with USEPA's PCB spill cleanup regulations cited below.

40 CFR Section 761.125 Requirements for PCB Spill Cleanup
Soil contaminated by the spill will be decontaminated to 10 ppm PCBs by weight provided that soil is excavated to a minimum depth of 10 inches. The excavated soil will be replaced with clean soil, i.e., containing less than 1 ppm PCBs, and the spill site will be restored.

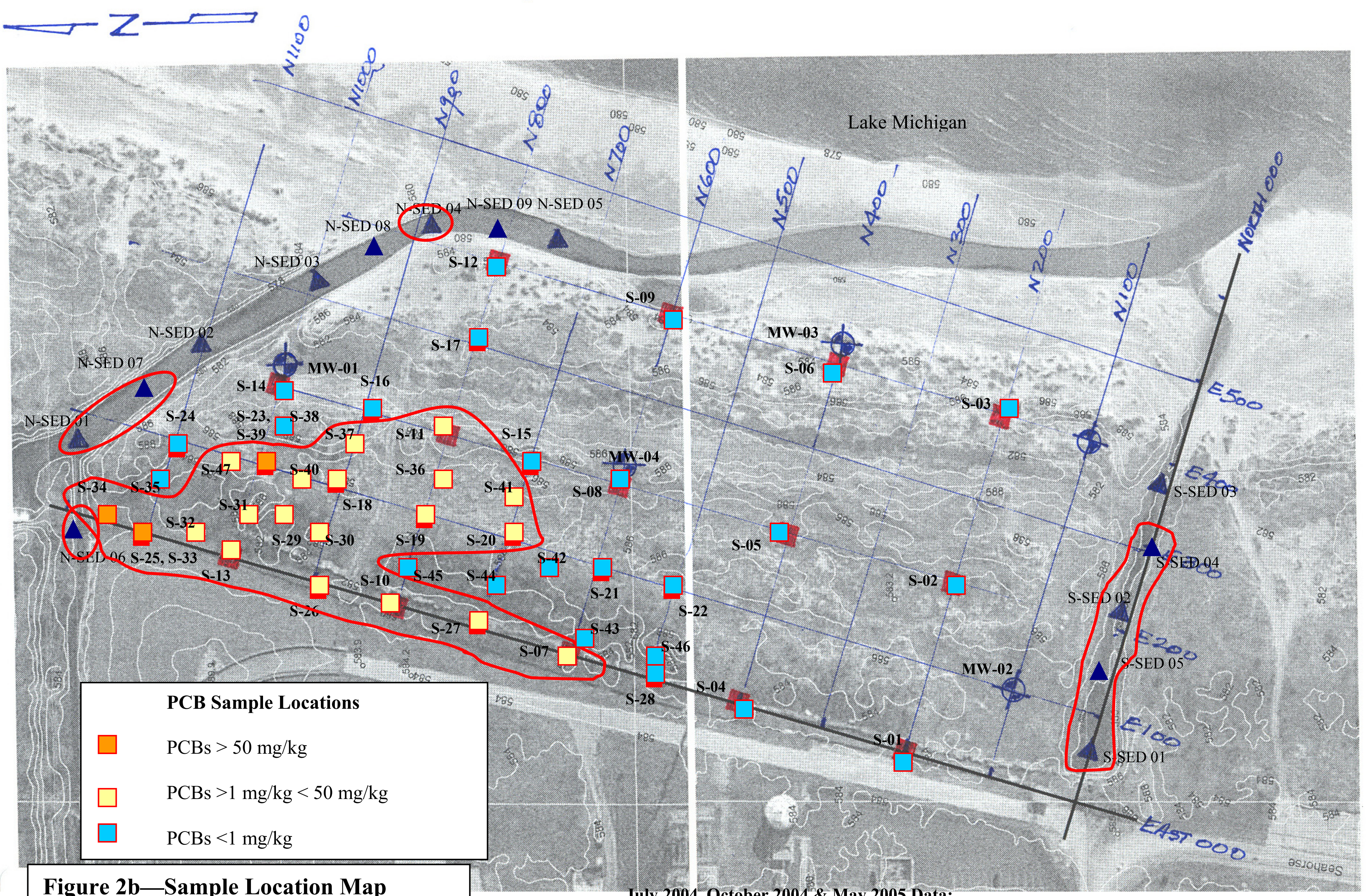


Figure 2b—Sample Location Map

MW—Monitoring Well
SED—Sediment Sample
S-Soil Probe Sample Location

July 2004, October 2004 & May 2005 Data:
PCB Soil Exceedances: S-7, S-10, S-11, S-13, S-18, S-19, S-20, S-23, S-25, S-26, S-27, S-29, S-30, S-31, S-32, S-34, S-36, S-37, S-40, S-41, S-47
PCB Sediment Exceedances: N-SED-01, N-SED-04, N-SED-06, N-SED-07; S-SED-01, S-SED-02, S-SED-04, S-SED-05

In Situ Field Hydraulic Conductivity Testing OMC Plant 2 (Operable Unit 4), Waukegan, Illinois WA No. 237-RICO-0528, Contract No. 68-W6-0025

PREPARED FOR: USEPA

PREPARED BY: CH2M HILL

DATE: October 13, 2005

Introduction

This memorandum documents the activities associated with the in situ hydraulic testing (slug testing) completed as part of the Remedial Investigation (RI) at the Outboard Marine Corporation (OMC) Plant 2 site in Waukegan, Illinois. The testing was completed on May 9 and 10, 2005.

This memorandum includes the following:

- Description of specific field activities performed, including locations and methodology.
- Data evaluation methodology and a summary of the hydraulic conductivity results and method parameters (Table 1).
- Slug Test Reports (Attachment 1).

Investigation Activities

Slug testing of the newly installed monitoring wells was performed to determine the site-specific hydraulic conductivity of the aquifer beneath the site. The testing was conducted in accordance with procedures presented in ASTM standard D 4044 – 96, *Standard Test Method for (Field Procedure) for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers* (1996).

Equipment and Materials

A water level indicator was used to measure water depth from the top of casing (TOC) before the testing. A 1-inch-diameter polyvinyl chloride (PVC) slug with a known volume was used to displace water within the monitoring well. The changes in water level were measured using a pressure transducer, which was connected to a data logger. The slug and associated equipment were decontaminated between locations. Field instruments were evaluated daily and removed from service if performance issues were observed.

Slug Testing Procedures

Slug testing was performed at all of the monitoring well locations installed during the RI. The slug testing method involves stressing the aquifer through an instantaneous displacement of water (with a slug) and subsequently measuring the water level response in the well over time. Rising and falling head slug tests were performed based on field conditions (depth to water in monitoring well in reference to screened interval) and to determine aquifer response to different stress conditions. A falling head slug test was conducted by producing a rise in the water level and monitoring the water level decline. A rising head slug test was conducted by producing a drop in the water level and monitoring the water level rise. Both tests accomplished the rise or fall in head through insertion/ removal of a solid PVC cylinder of known volume into/from the water column and recording the change in head information with a pressure transducer.

Before testing, the water level in the well was measured and recorded to determine if the water level was above or within the screened interval of the well. If the top of the water table was found to be above the top of the screen, a falling-head slug test, followed by a rising head test, was performed. If the top of the water table was below the top of the screen, then two rising-head slug tests were performed.

Upon measuring the water level, a pressure transducer was lowered into the water column and kept approximately 2 inches from the bottom of the well. The water level in the well was allowed to stabilize. A head change was induced by rapidly inserting the PVC slug into the well (falling head test) or removing the PVC slug from below the water surface (rising head test). In response to the slug, the water level within the well rose or declined an amount equal to the volume of the slug. A pressure transducer and data logger were used to automatically record the water level responses at predetermined time intervals. The test was continued until the water levels returned to static water levels (water levels measured prior to the start of the test) or minimal changes in water levels (less than 0.1 foot) were measured.

Data Evaluation Activities

The water level drawdown/recovery data were recorded by the data logger and downloaded to a computer. The water level data versus time were graphed on semi-logarithmic paper (drawdown on the logarithmic axis) (Attachment 2). Analysis involves matching a straight-line solution to water-level displacement data collected during a slug test. Graphs were analyzed with the software program Aqtesolv™ utilizing the Bouwer-Rice method (Bouwer and Rice, 1976). All parameters and hydraulic test results are presented in Table 1. Well completion logs are located in Attachment 1.

References

D 4044 – 96, *Standard Test Method for (Field Procedure) for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers* (1996).

Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

TABLE 1

Slug Test Parameters and Result Summary

OMC Plant 2

Bouwer-Rice Method Parameters						Hydrolic Conductivity (cm/sec)						
Well ID	Radius of Well Casing (feet)	Radius of Borehole (feet)	Length of Well Screen (feet)	DTW (ft btoc)	Assumed Aquifer Thickness (feet)	Falling Head Test (attempt 1)	Falling Head Test (attempt 2)	Rising Head Test (attempt 1)	Rising Head Test (attempt 2)	Falling Head Average	Rising Head Average	Total Average
MW-500D	0.08612	0.333	5.0	4.06	30	3.22E-03		3.73E-03			3.73E-03	3.47E-03
MW-500S	0.08612	0.333	5.0	3.98	30			8.98E-02	5.66E-02		7.32E-02	7.32E-02
MW-501D	0.08612	0.333	5.0	5.23	30	2.88E-03		3.03E-03			3.03E-03	2.95E-03
MW-501S	0.08612	0.333	5.0	5.23	30			2.51E-02	5.92E-03		1.55E-02	1.55E-02
MW-502D	0.08612	0.333	5.0	4.68	30	5.82E-03		4.89E-03				5.35E-03
MW-502S	0.08612	0.333	5.0	4.79	30			3.93E-03	2.38E-02		1.39E-02	1.39E-02
MW-503D	0.08612	0.333	5.0	2.36	30	4.85E-03		NA				4.85E-03
MW-503S	0.08612	0.333	5.0	2.40	30			6.36E-03	5.91E-03		6.13E-03	6.13E-03
MW-504D	0.08612	0.333	5.0	6.05	30	3.78E-03		3.89E-03			3.89E-03	3.83E-03
MW-504S	0.08612	0.333	5.0	6.12	30			3.66E-02	3.44E-02		3.55E-02	3.55E-02
MW-505D	0.08612	0.333	5.0	5.46	30	5.39E-03		5.90E-03			5.90E-03	5.64E-03
MW-505S	0.08612	0.333	5.0	5.62	30			1.73E-02	1.76E-02		1.75E-02	1.75E-02
MW-506D	0.08612	0.333	5.0	5.94	30	5.18E-03		5.35E-03			5.35E-03	5.26E-03
MW-506S	0.08612	0.333	5.0	5.93	30			4.66E-02	4.79E-02		4.73E-02	4.73E-02
MW-507D	0.08612	0.333	5.0	4.52	30	3.28E-03	3.04E-03	3.13E-03		3.16E-03	3.13E-03	3.15E-03
MW-507S	0.08612	0.333	5.0	4.49	30			1.22E-02	1.14E-02		1.18E-02	1.18E-02
MW-508D	0.08612	0.333	5.0	3.68	30	3.44E-03		3.47E-03			3.47E-03	3.46E-03
MW-508S	0.08612	0.333	5.0	3.68	30			2.21E-02	2.15E-02		2.18E-02	2.18E-02
MW-509D	0.08612	0.333	5.0	1.18	30	6.94E-03	6.48E-03	7.33E-03	6.85E-03	6.71E-03	7.09E-03	6.90E-03
MW-509S	0.08612	0.333	5.0	1.21	30			1.51E-02	1.75E-02		1.63E-02	1.63E-02
MW-510D	0.08612	0.333	5.0	5.90	30	4.71E-03		4.77E-03			4.77E-03	4.74E-03
MW-510S	0.08612	0.333	5.0	5.88	30			1.12E-02	1.03E-02		1.07E-02	1.07E-02
MW-511D	0.08612	0.333	5.0	6.49	30	6.19E-03		3.16E-03			3.16E-03	4.67E-03
MW-511S	0.08612	0.333	5.0	6.44	30			1.08E-02	4.10E-02		2.59E-02	2.59E-02
MW-512D	0.08612	0.333	5.0	3.04	30	4.18E-03		4.33E-03			4.33E-03	4.26E-03
MW-512S	0.08612	0.333	5.0	3.01	30			1.10E-02	1.20E-02		1.15E-02	1.15E-02
MW-513D	0.08612	0.333	5.0	3.58	30		5.77E-03	6.28E-03	5.93E-03		6.10E-03	5.99E-03
MW-513S	0.08612	0.333	5.0	3.51	30			9.62E-02	9.55E-02		9.59E-02	9.59E-02
MW-514D	0.08612	0.333	5.0	3.42	30		7.46E-03	8.33E-03			8.33E-03	7.89E-03
MW-514S	0.08612	0.333	5.0	3.44	30			5.44E-02	1.11E-02		3.28E-02	3.28E-02
MW-515D	0.08612	0.333	5.0	2.28	30	4.17E-03		4.53E-03			4.53E-03	4.35E-03
MW-515S	0.08612	0.333	5.0	2.41	30			1.08E-02	1.12E-02		1.10E-02	1.10E-02
MW-516D	0.08612	0.333	5.0	3.72	30	2.20E-03		3.03E-03			3.03E-03	2.61E-03
MW-516S	0.08612	0.333	5.0	3.28	30			6.94E-02	7.28E-02		7.11E-02	7.11E-02
MW-517D	0.08612	0.333	5.0	4.29	30	6.28E-03	6.20E-03	6.58E-03	6.53E-03	6.24E-03	6.56E-03	6.40E-03
MW-517S	0.08612	0.333	5.0	4.21	30			1.15E-02	1.08E-02		1.12E-02	1.12E-02

Geometric Mean Shall 2.16E-02

Geometric Mean Dee 4.56E-03

Notes:

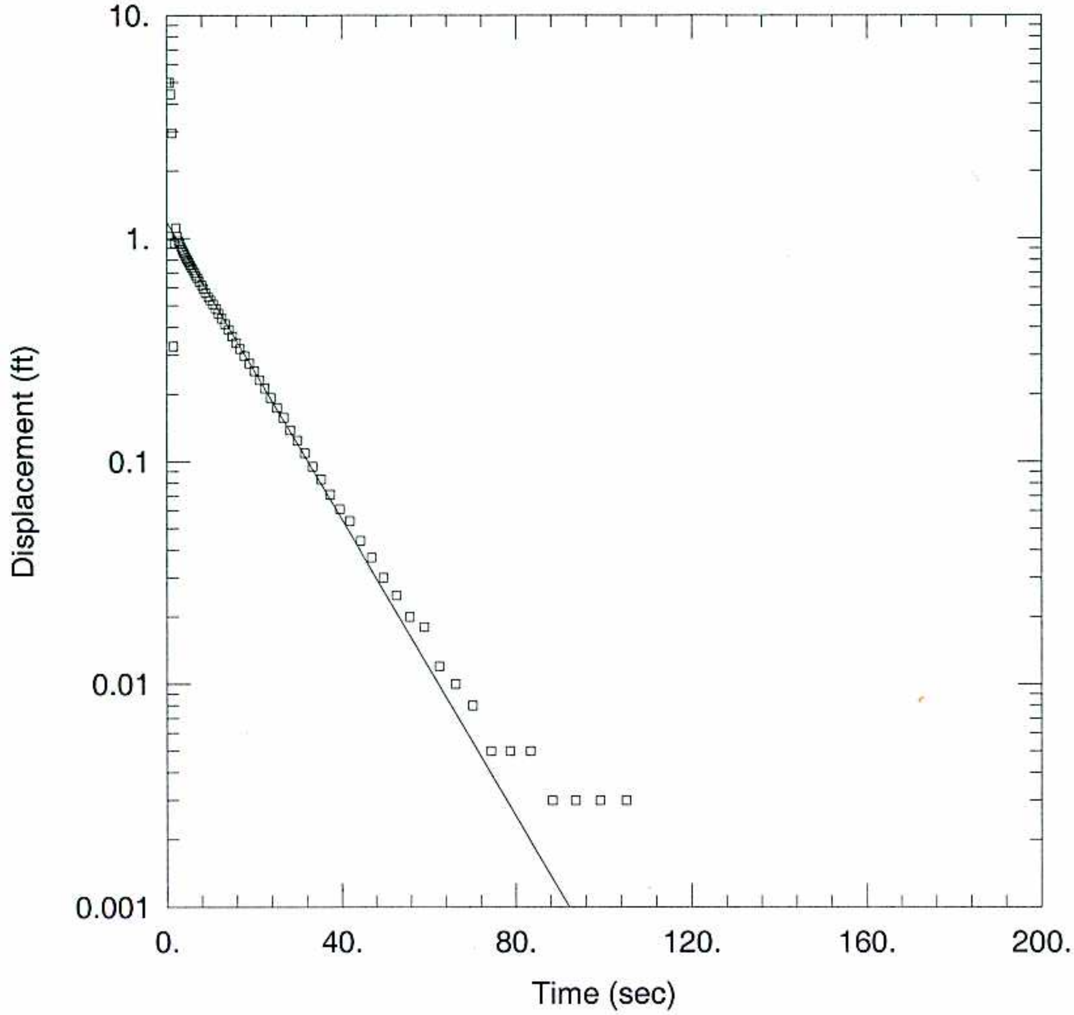
a. ft bgs = feet below ground surface.

b. ft btoc = feet below top of casing

c. NA = not available

Attachment 1

Slug Test Reports
OMC Plant 2—In Situ Field
Hydrologic Conductivity Testing



WELL TEST ANALYSIS

Data Set: \...\MW-501D rising.aqt
Date: 10/13/05 Time: 15:43:51

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-510D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.7 ft Anisotropy Ratio (Kz/Kr): 1.

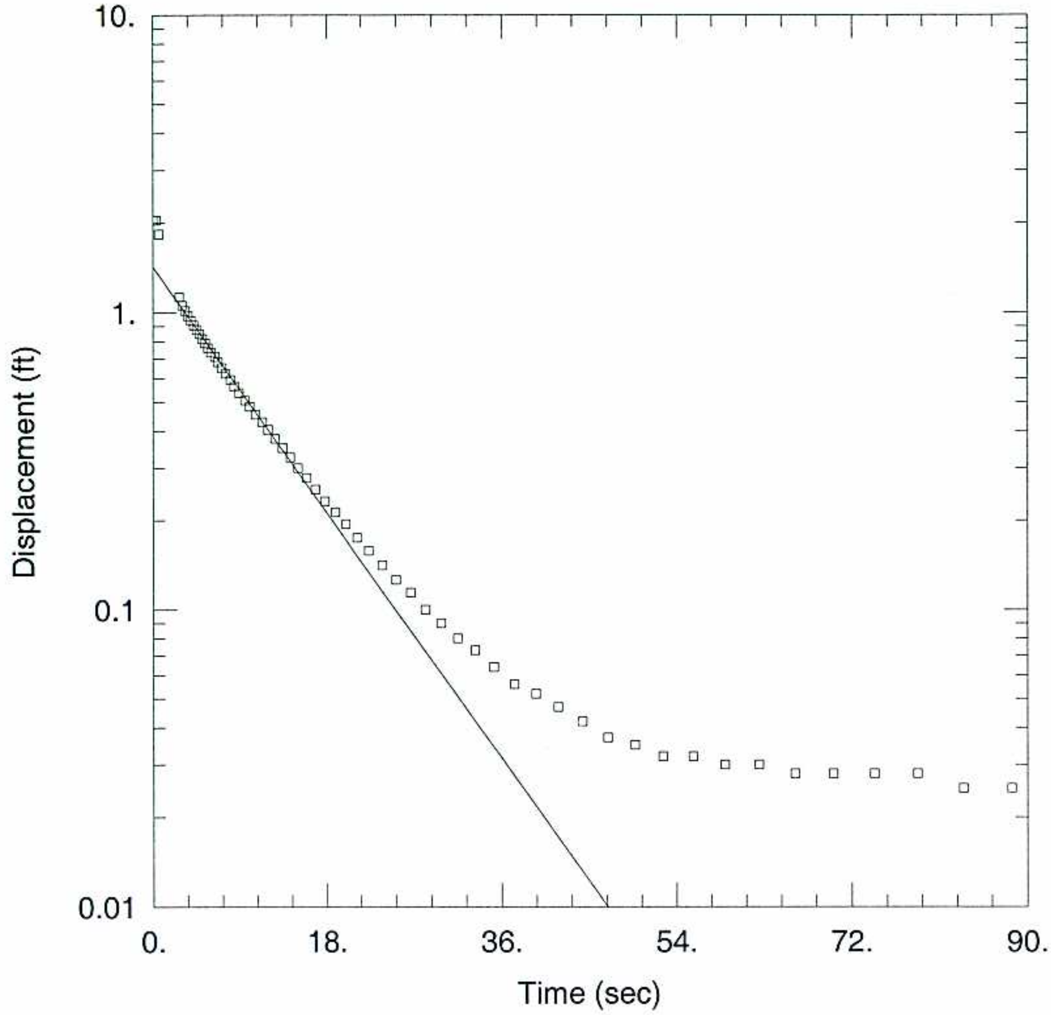
WELL DATA (MW-510D)

Initial Displacement: 4.995 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 21.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004774 cm/sec y0 = 1.181 ft



WELL TEST ANALYSIS

Data Set: \...\MW-502S rising.aqt
Date: 10/13/05 Time: 15:44:39

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-502S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.5 ft
Anisotropy Ratio (Kz/Kr): 1.

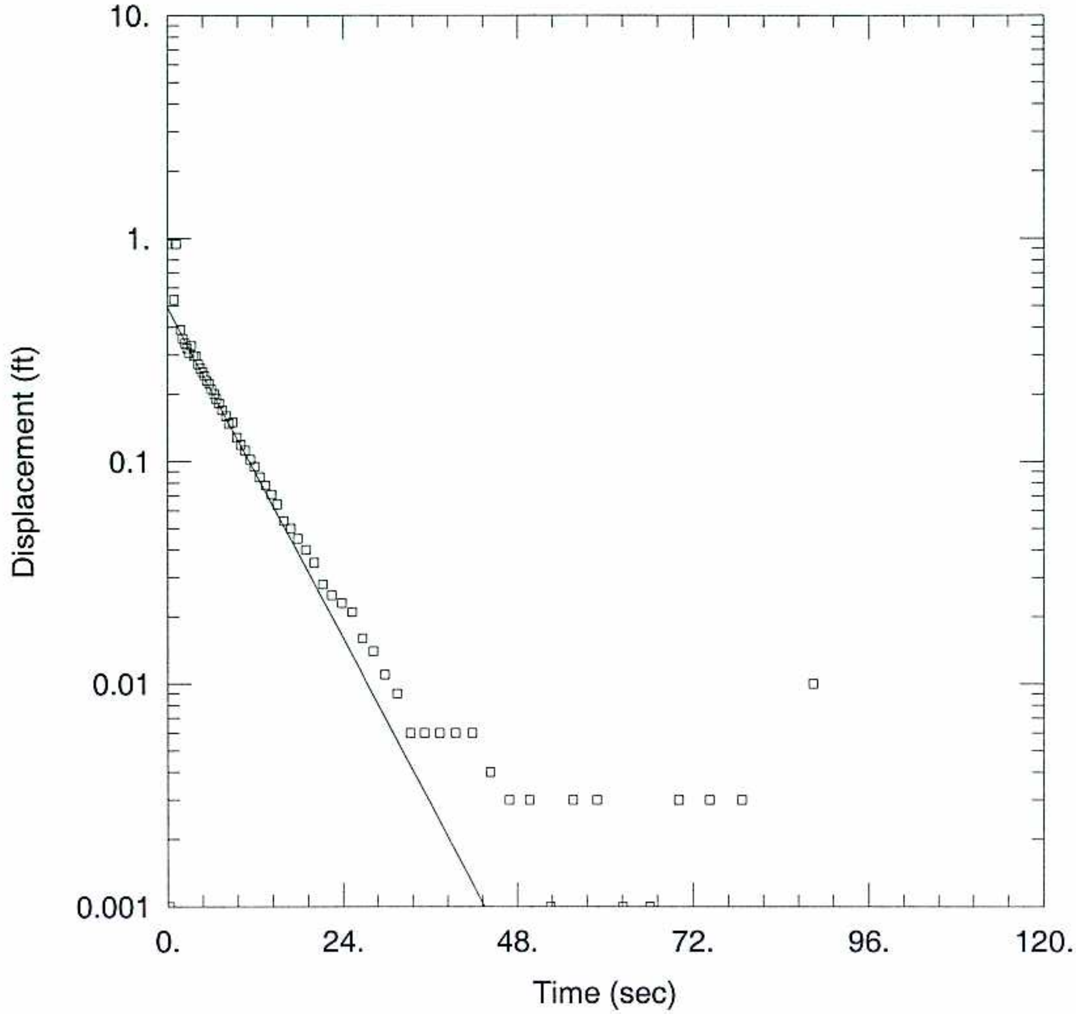
WELL DATA (MW-502S)

Initial Displacement: 2.038 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 5.39 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.003933 cm/sec
y0 = 1.422 ft



WELL TEST ANALYSIS

Data Set: \...\MW-502S rising2.aqt
Date: 10/13/05 Time: 15:44:30

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-502S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-502S)

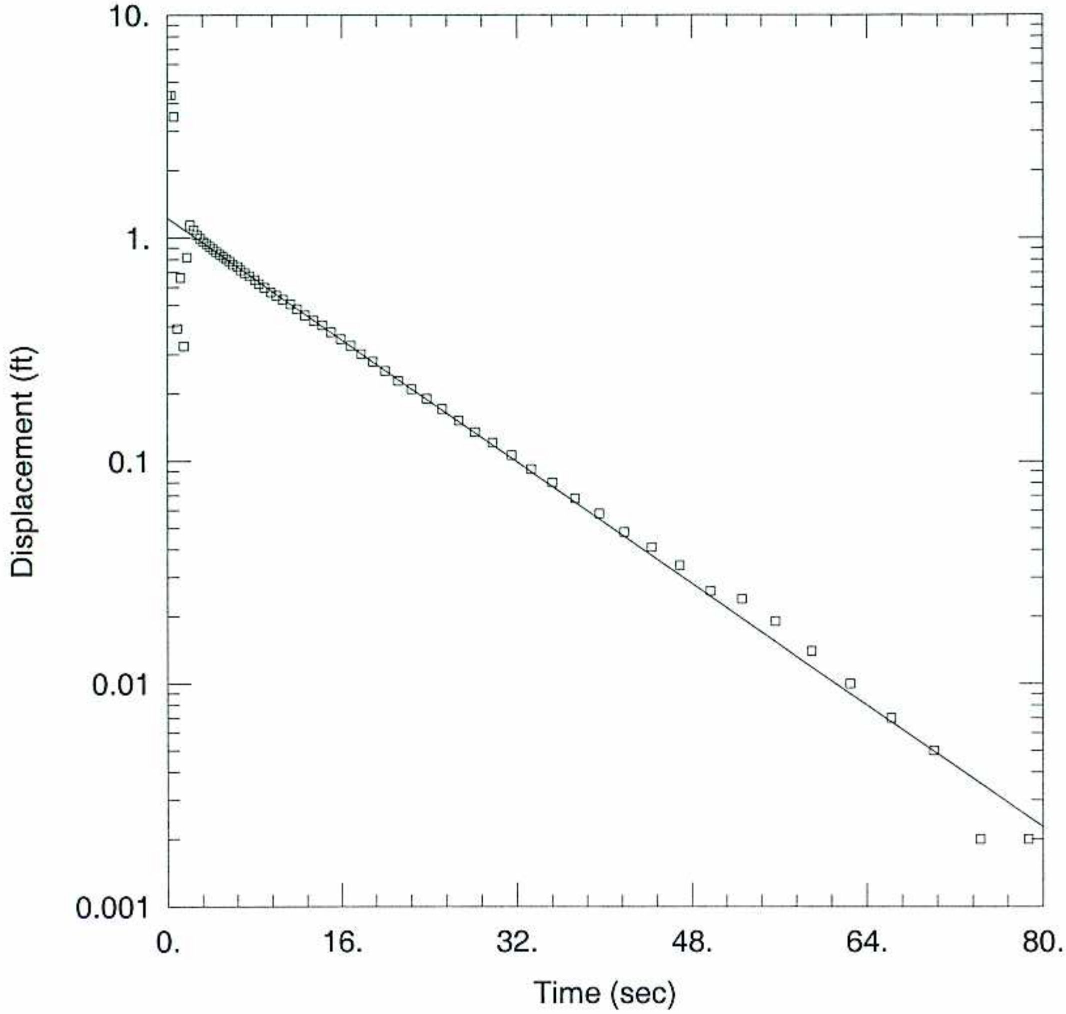
Initial Displacement: 0.941 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25

Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 5.39 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.02377 cm/sec y0 = 0.4887 ft



WELL TEST ANALYSIS

Data Set: \...\MW-502D Rising.aqt
Date: 10/13/05 Time: 15:44:22

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-502D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-502D)

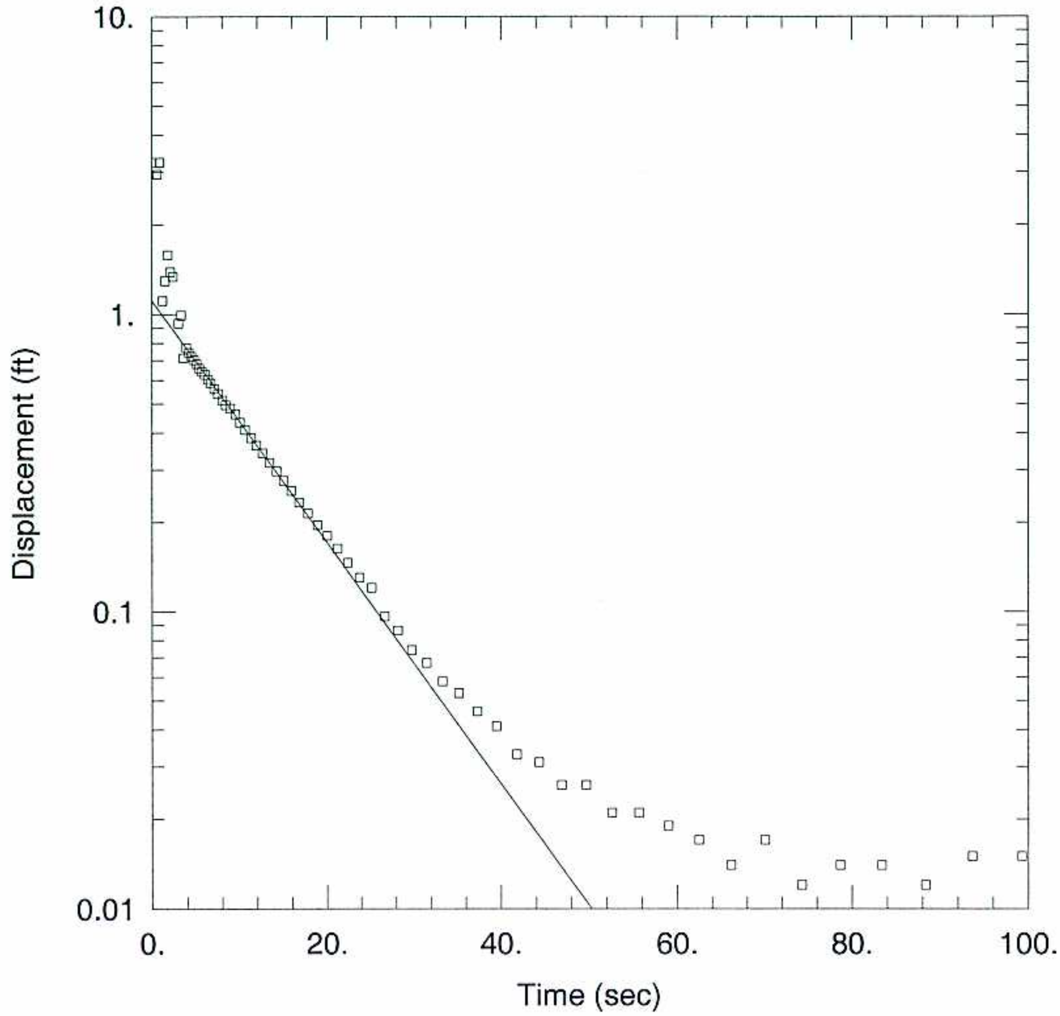
Initial Displacement: 4.362 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25

Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 21.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004885 cm/sec y0 = 1.225 ft



WELL TEST ANALYSIS

Data Set: \...\MW-502D Falling.aqt
Date: 10/13/05 Time: 15:44:14

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-502D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.5 ft Anisotropy Ratio (Kz/Kr): 1.

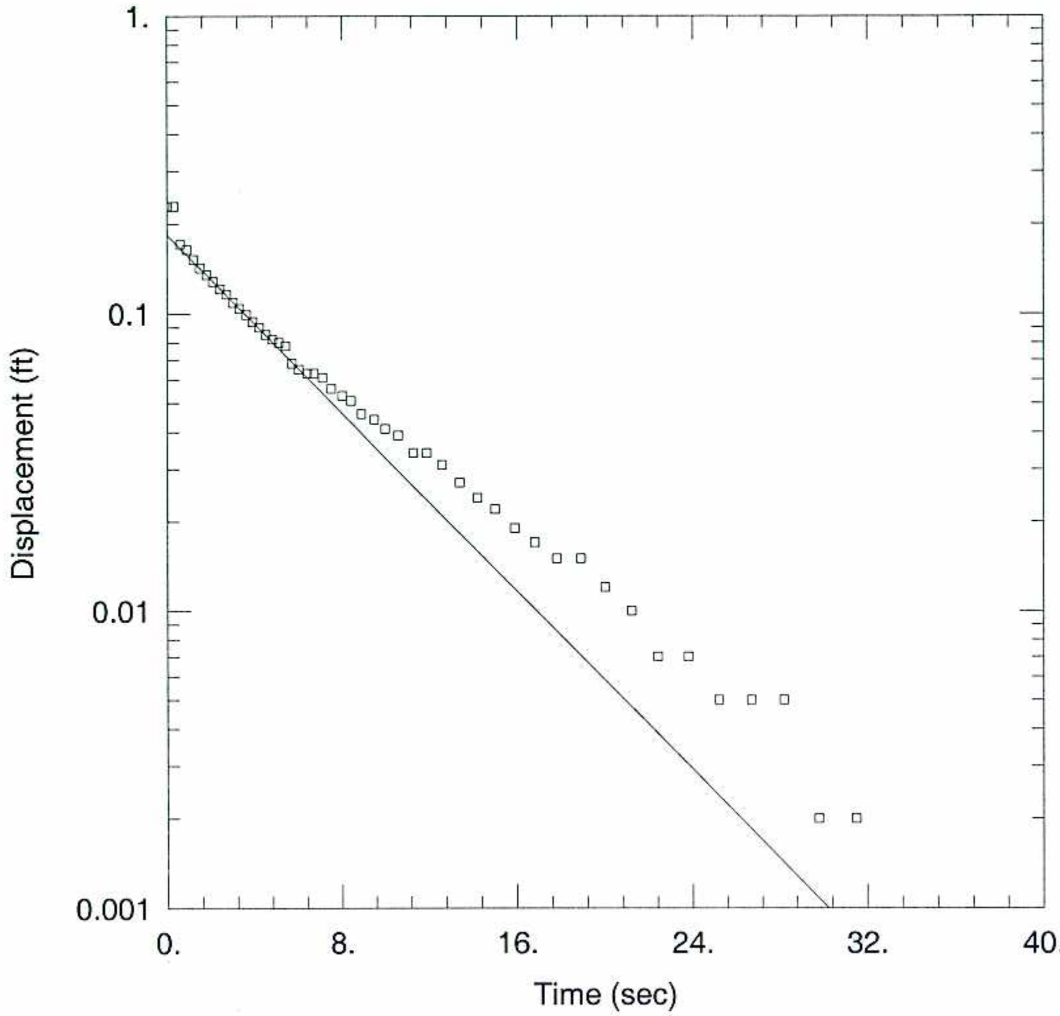
WELL DATA (MW-502D)

Initial Displacement: 3.233 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 21.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005817 cm/sec y0 = 1.11 ft



WELL TEST ANALYSIS

Data Set: \...\MW-503S Rising.aqt
Date: 10/13/05 Time: 15:46:01

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-503S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.3 ft
Anisotropy Ratio (Kz/Kr): 1.

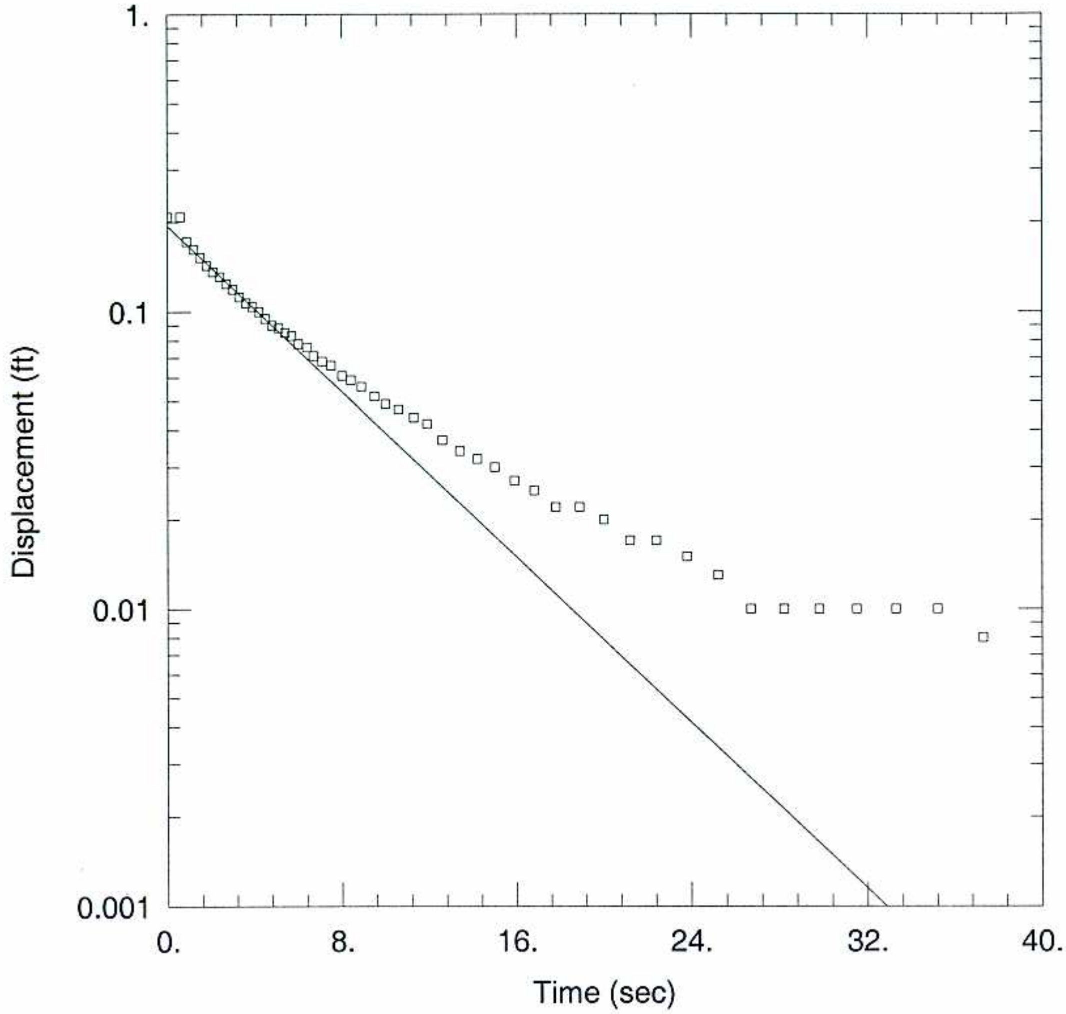
WELL DATA (MW-503S)

Initial Displacement: 0.229 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 5.25 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006355 cm/sec
y0 = 0.1838 ft



WELL TEST ANALYSIS

Data Set: \...\MW-503S Rising2.aqt
Date: 10/13/05 Time: 15:45:56

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-503S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.3 ft
Anisotropy Ratio (Kz/Kr): 1.

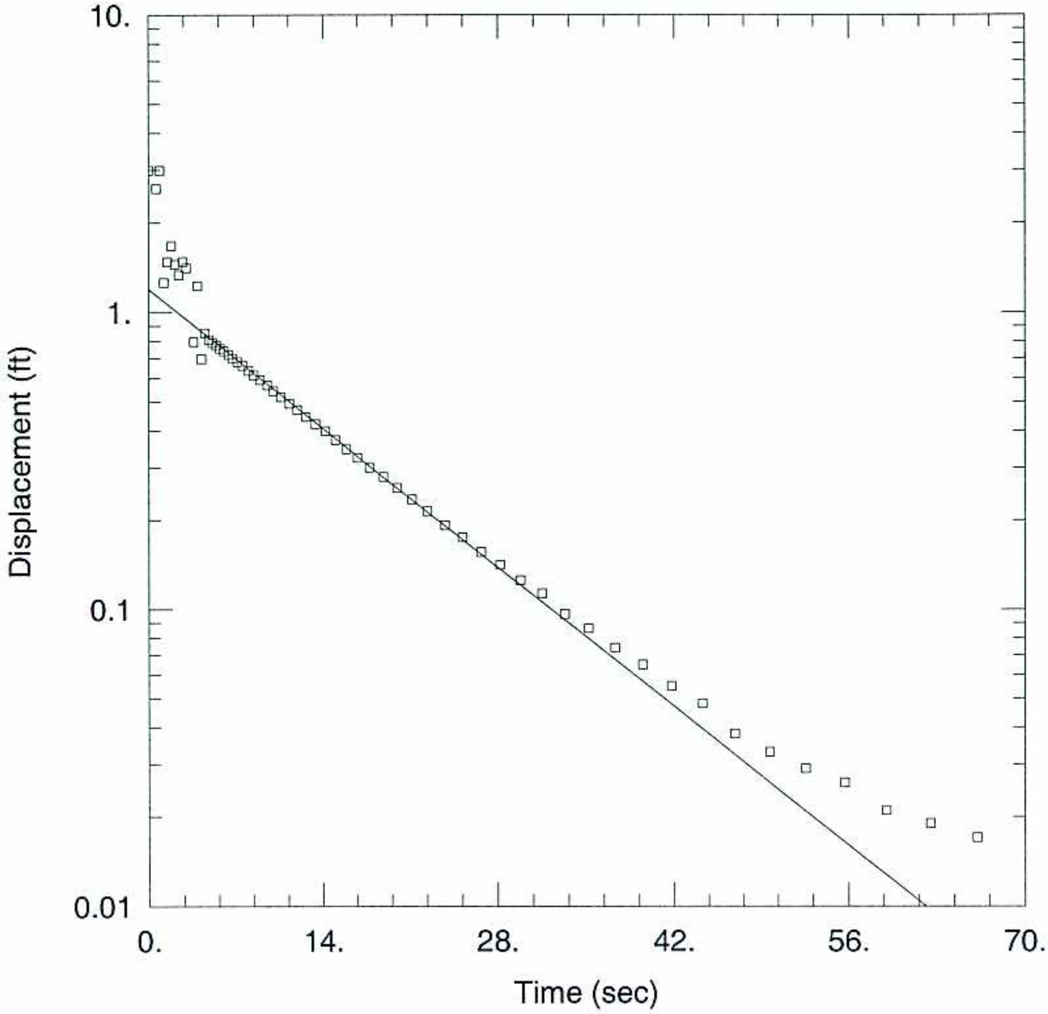
WELL DATA (MW-503S)

Initial Displacement: 0.208 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 5.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.005907 cm/sec
y0 = 0.1943 ft



WELL TEST ANALYSIS

Data Set: \...\MW-503D Falling.aqt
Date: 10/13/05 Time: 15:44:47

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-503D
Test Date: 05-09-2005

AQUIFER DATA

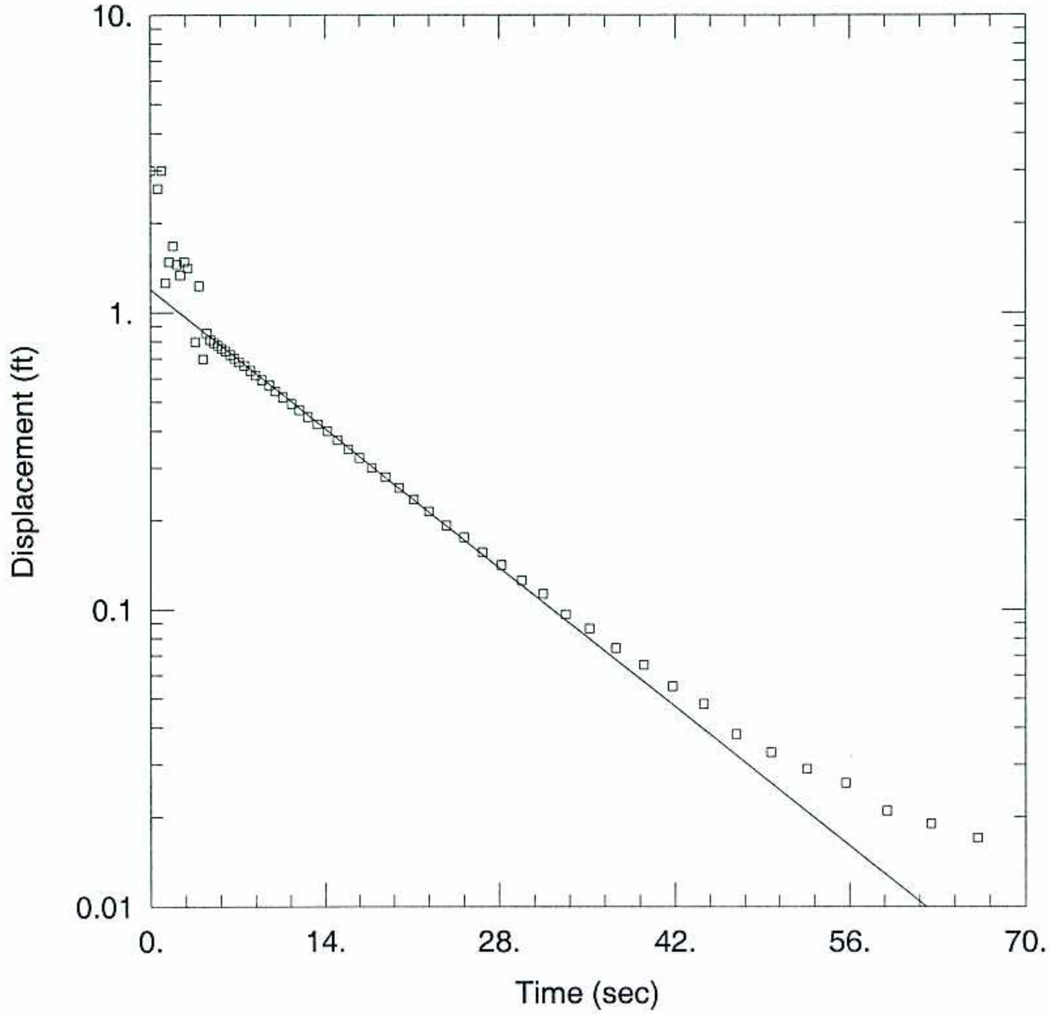
Saturated Thickness: 23.3 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-503D)

Initial Displacement: 2.994 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 23.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.00485 cm/sec y0 = 1.193 ft



WELL TEST ANALYSIS

Data Set: \...\MW-503D Falling.aqt
Date: 10/13/05 Time: 15:45:50

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-503D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.3 ft Anisotropy Ratio (Kz/Kr): 1.

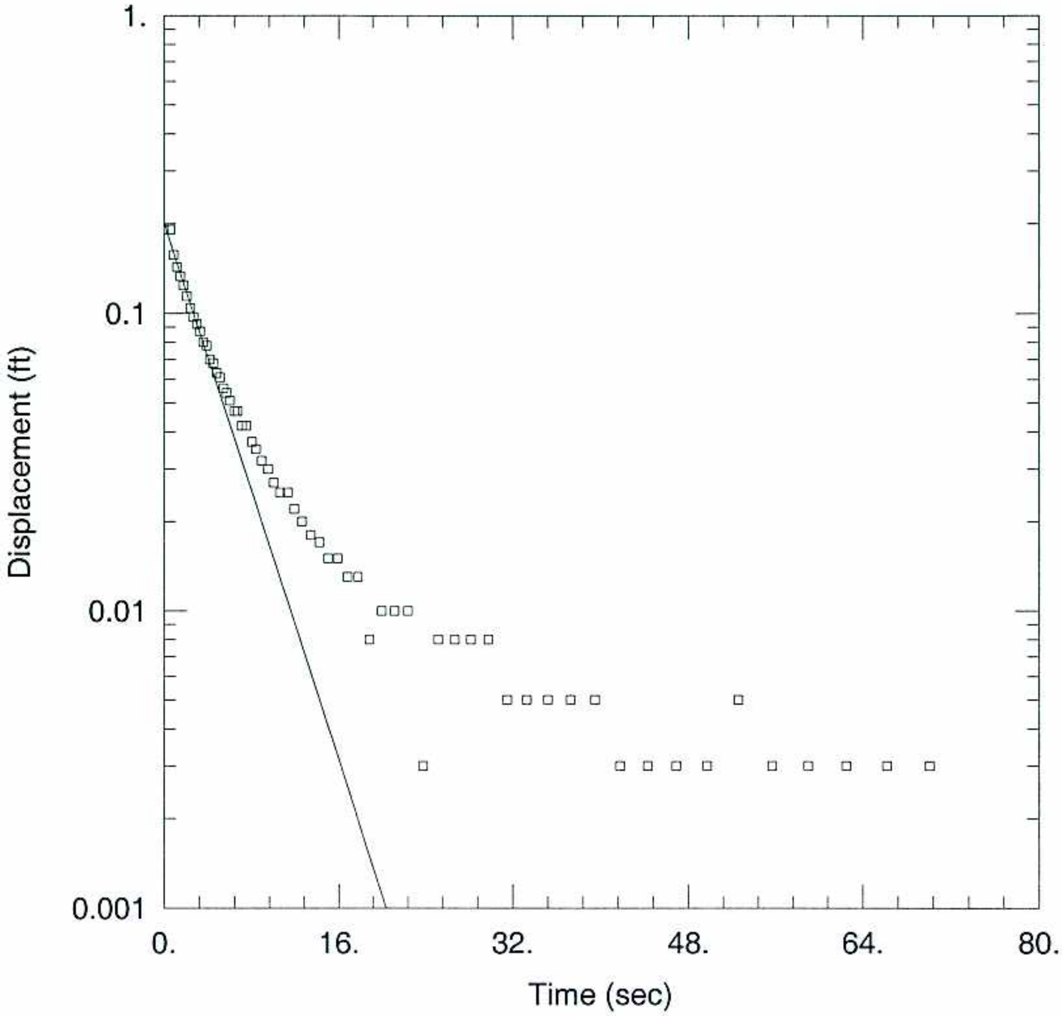
WELL DATA (MW-503D)

Initial Displacement: 2.994 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 23.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00485 cm/sec y0 = 1.193 ft



WELL TEST ANALYSIS

Data Set: \...\MW-504S rising.aqt
Date: 10/13/05
Time: 15:46:27

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-504S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft
Anisotropy Ratio (Kz/Kr): 1.

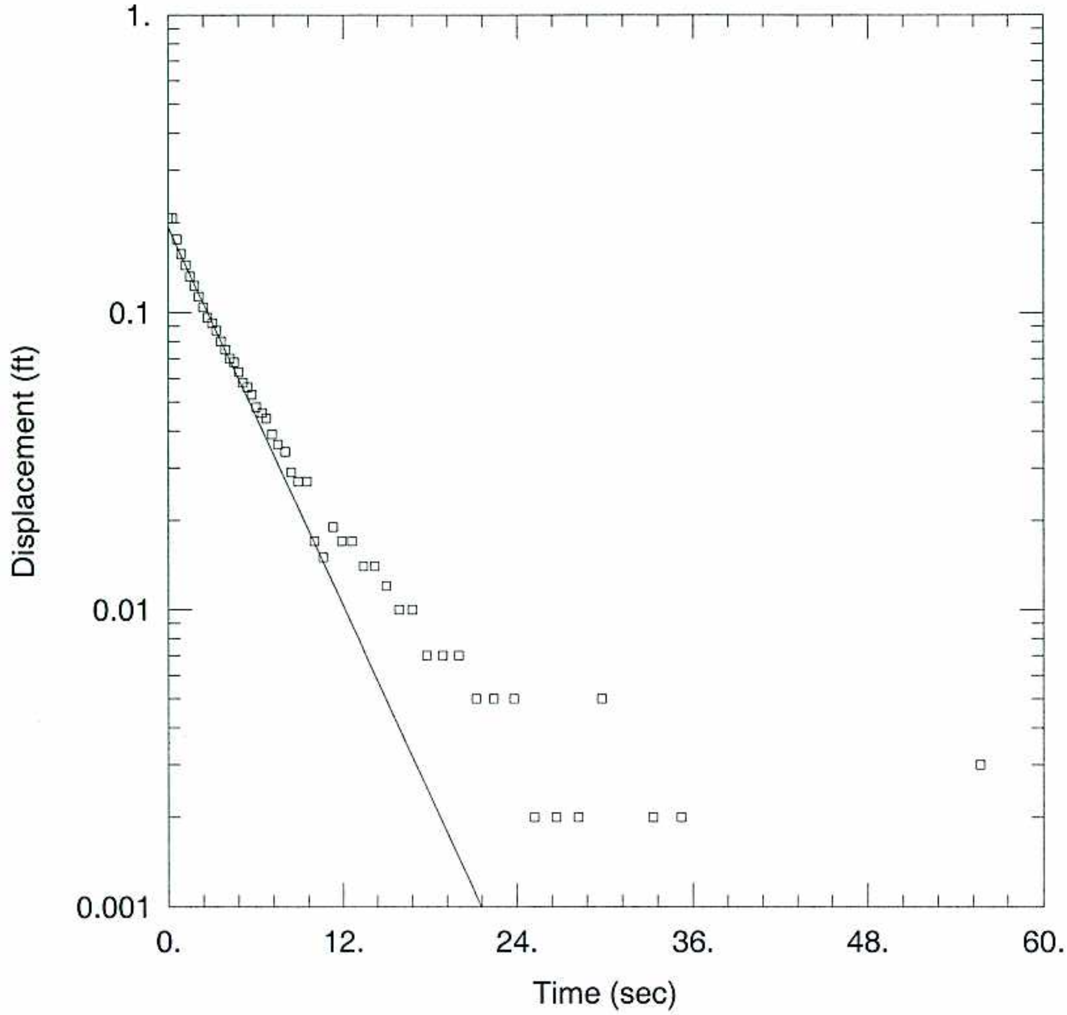
WELL DATA (MW-504S)

Initial Displacement: 0.191 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.03661 cm/sec
y0 = 0.2013 ft



WELL TEST ANALYSIS

Data Set: \...\MW-504S rising2.aqt
Date: 10/13/05 Time: 15:46:20

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-504S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft
Anisotropy Ratio (Kz/Kr): 1.

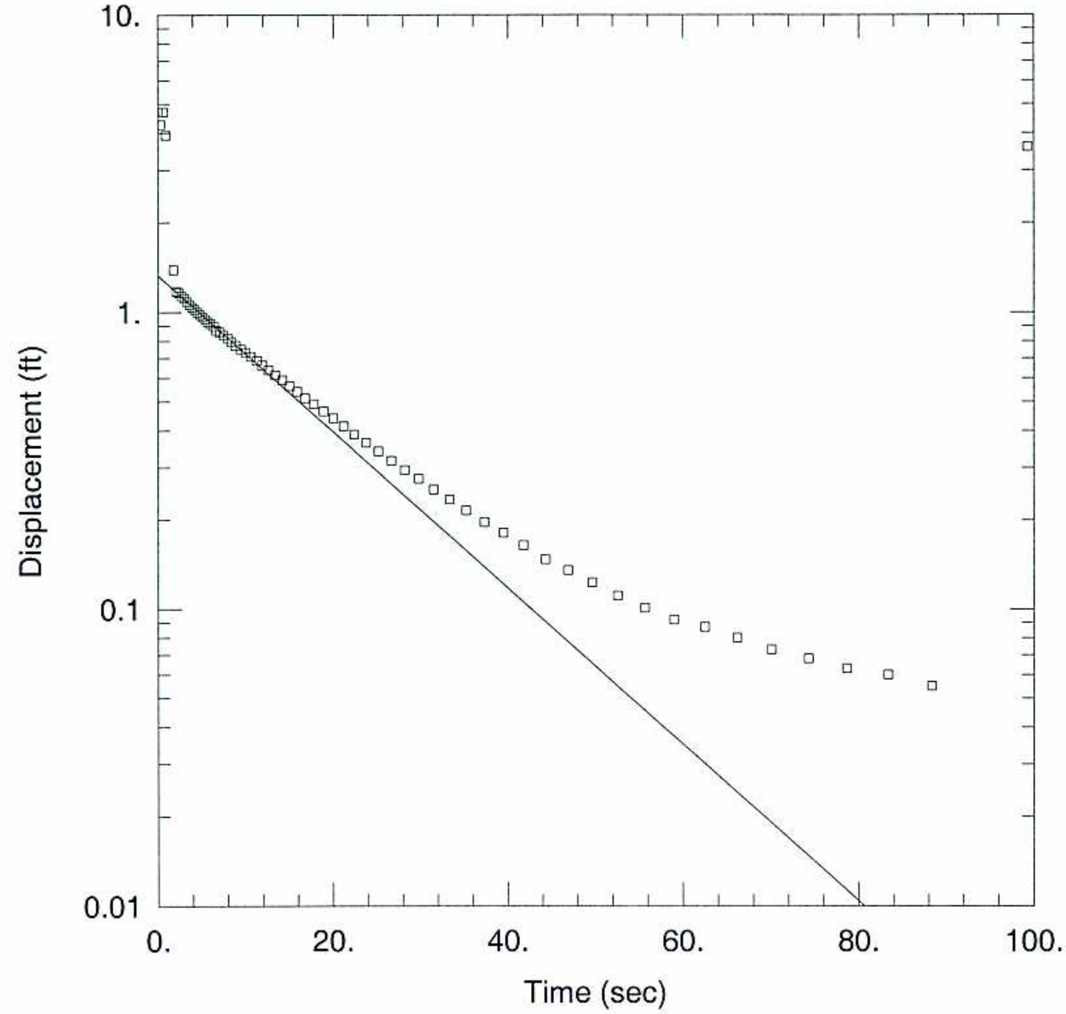
WELL DATA (MW-504S)

Initial Displacement: 0.207 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 3. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.03437 cm/sec
y0 = 0.1925 ft



WELL TEST ANALYSIS

Data Set: \...\MW-504D rising.aqt
Date: 10/13/05 Time: 15:46:13

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-504D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft Anisotropy Ratio (Kz/Kr): 1.

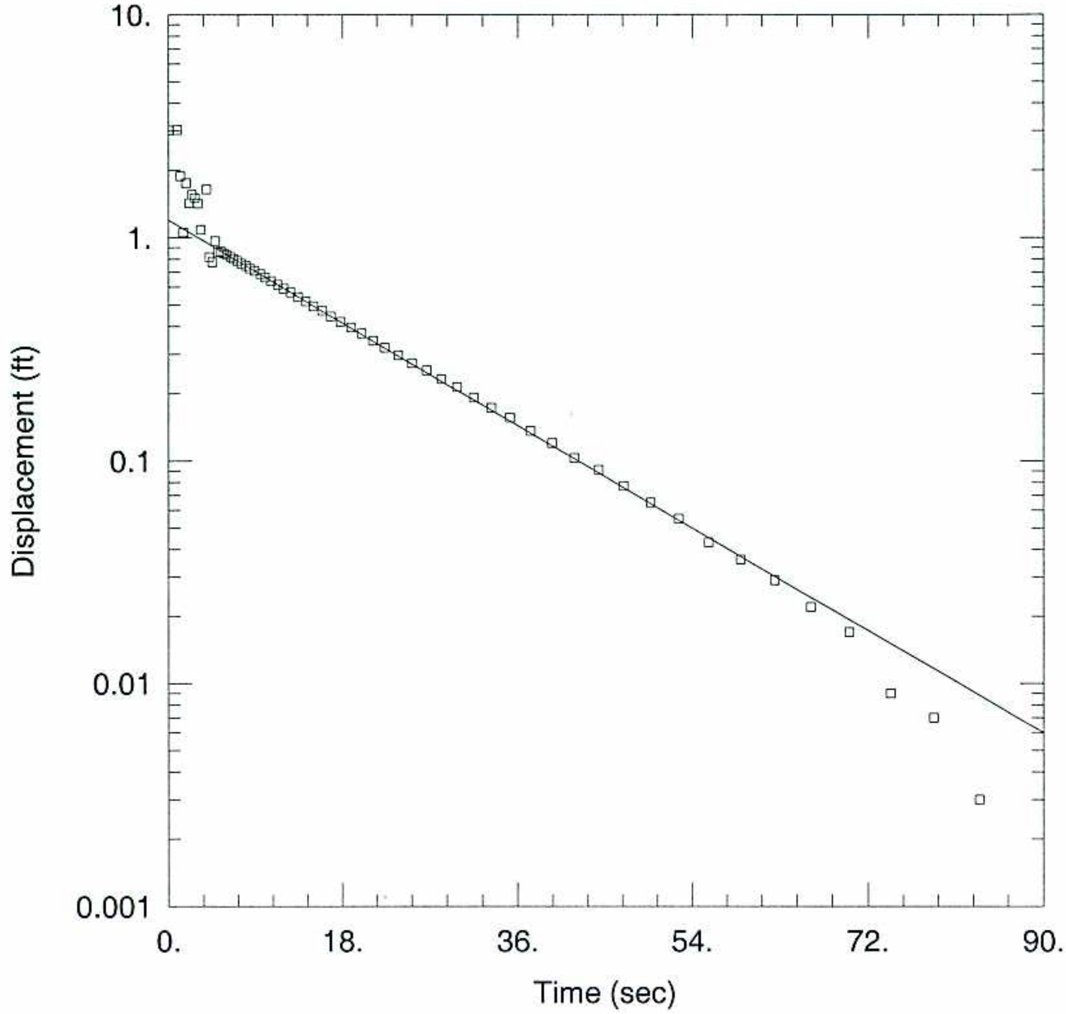
WELL DATA (MW-504D)

Initial Displacement: 4.707 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 26. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003888 cm/sec y0 = 1.328 ft



WELL TEST ANALYSIS

Data Set: \...\MW-504D Falling.aqt
Date: 10/13/05   Time: 15:46:08

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-504D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft   Anisotropy Ratio (Kz/Kr): 1.

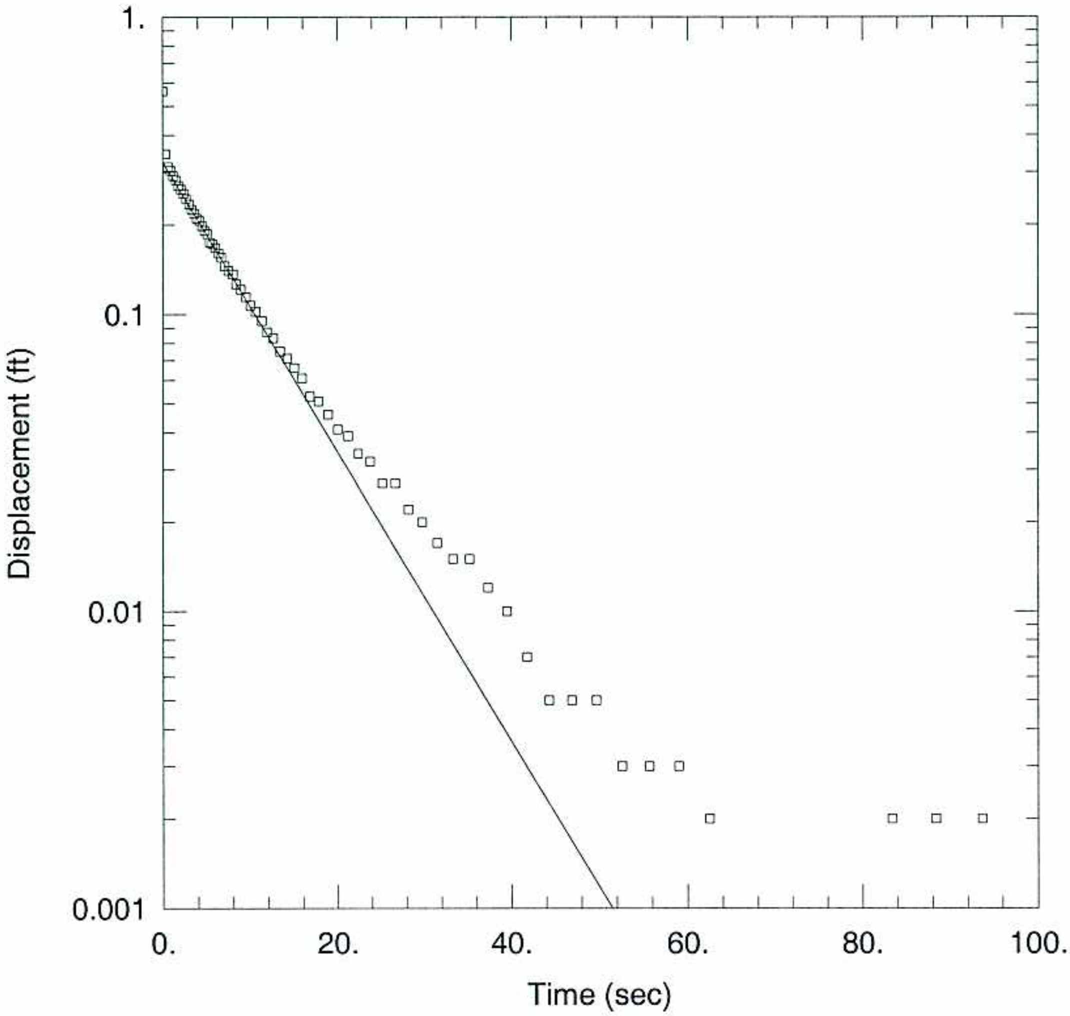
WELL DATA (MW-504D)

Initial Displacement: 3.03 ft   Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft   Well Skin Radius: 0.333 ft
Screen Length: 5. ft   Total Well Penetration Depth: 26. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined   Solution Method: Bouwer-Rice

K = 0.003777 cm/sec   y0 = 1.196 ft



WELL TEST ANALYSIS

Data Set: \...\MW-505S rising.aqt
Date: 10/13/05 Time: 15:46:58

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-505S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft Anisotropy Ratio (Kz/Kr): 1.

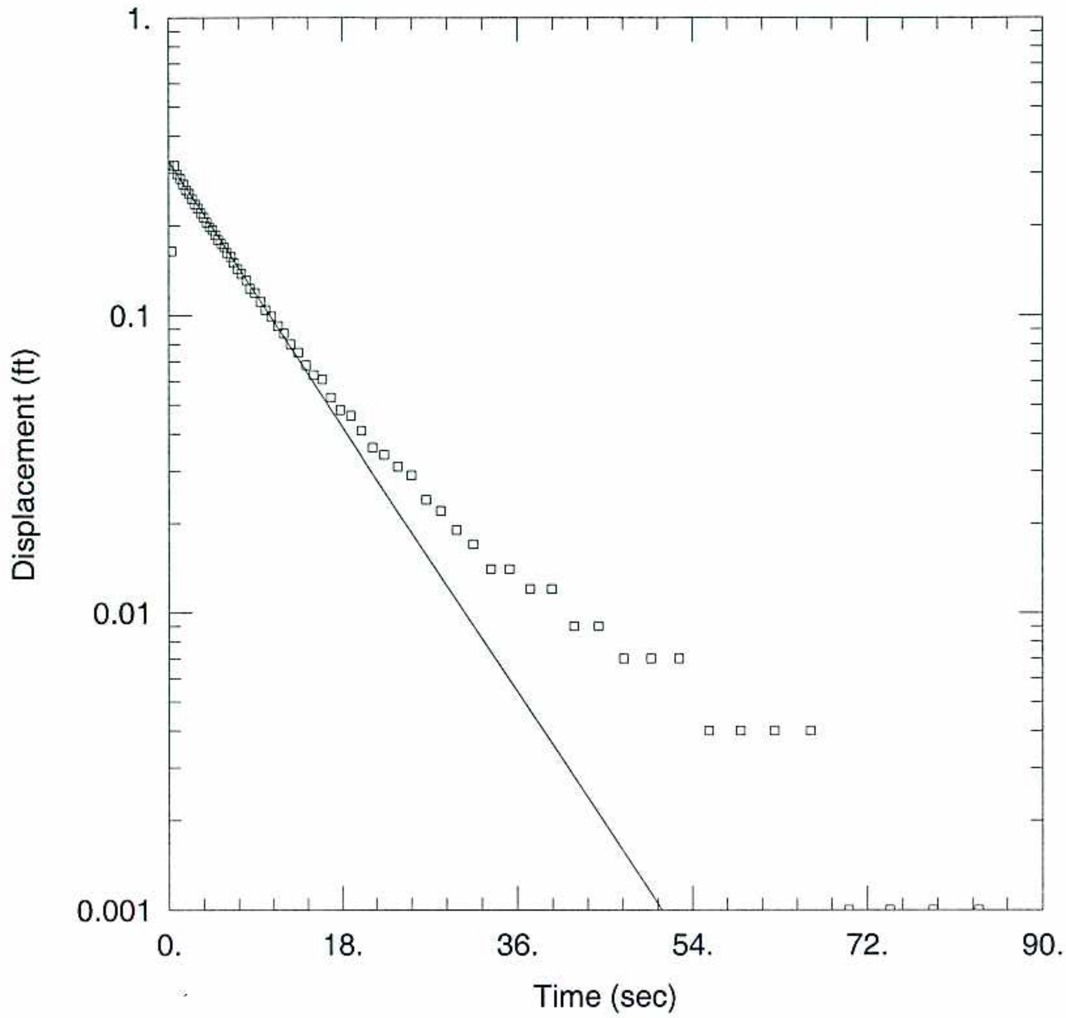
WELL DATA (MW-505S)

Initial Displacement: 0.561 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 4. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01732 cm/sec y0 = 0.3247 ft



WELL TEST ANALYSIS

Data Set: \...\MW-505S rising2.aqt
Date: 10/13/05 Time: 15:46:51

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-505S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft
Anisotropy Ratio (Kz/Kr): 1.

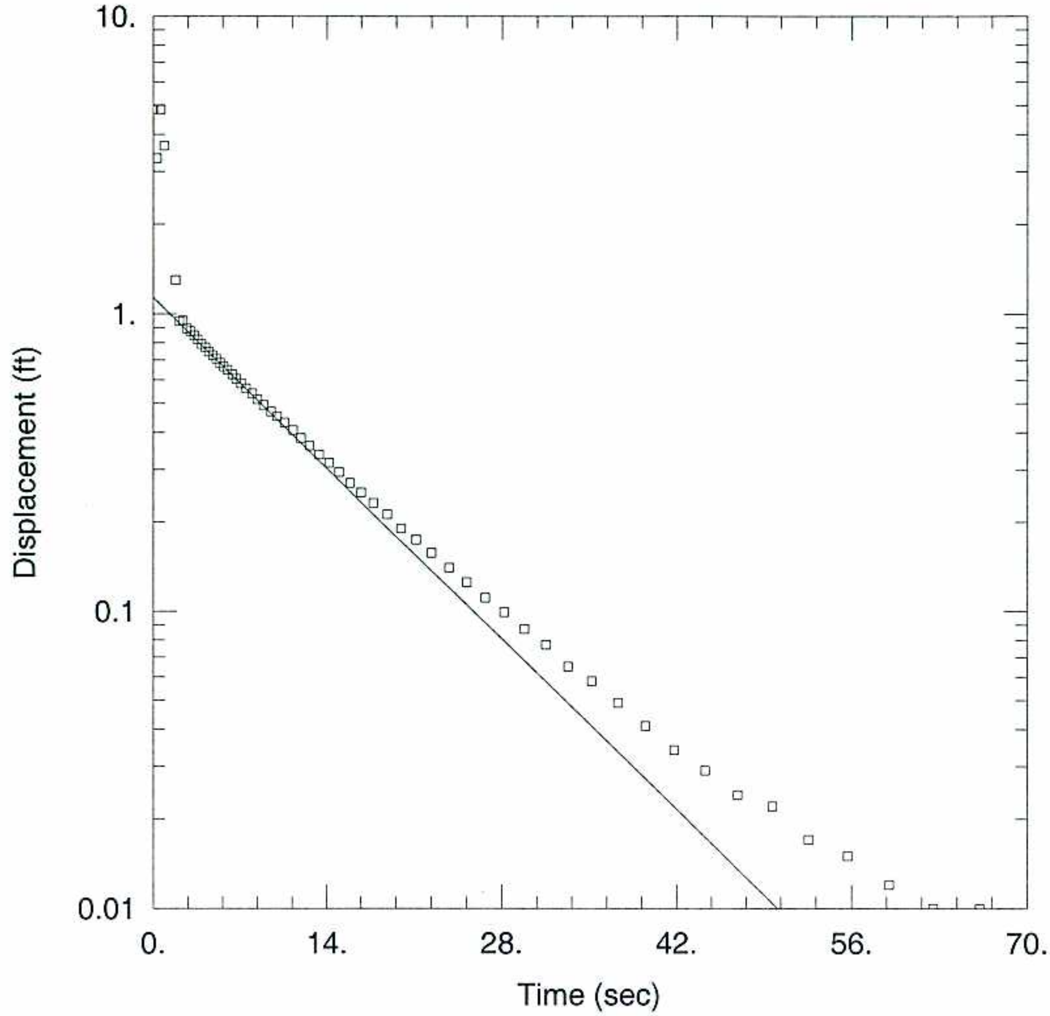
WELL DATA (MW-505S)

Initial Displacement: 0.318 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 4. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01759 cm/sec
y0 = 0.3287 ft



WELL TEST ANALYSIS

Data Set: \...\MW-505D rising.aqt
Date: 10/13/05 Time: 15:46:45

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-505D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft Anisotropy Ratio (Kz/Kr): 1.

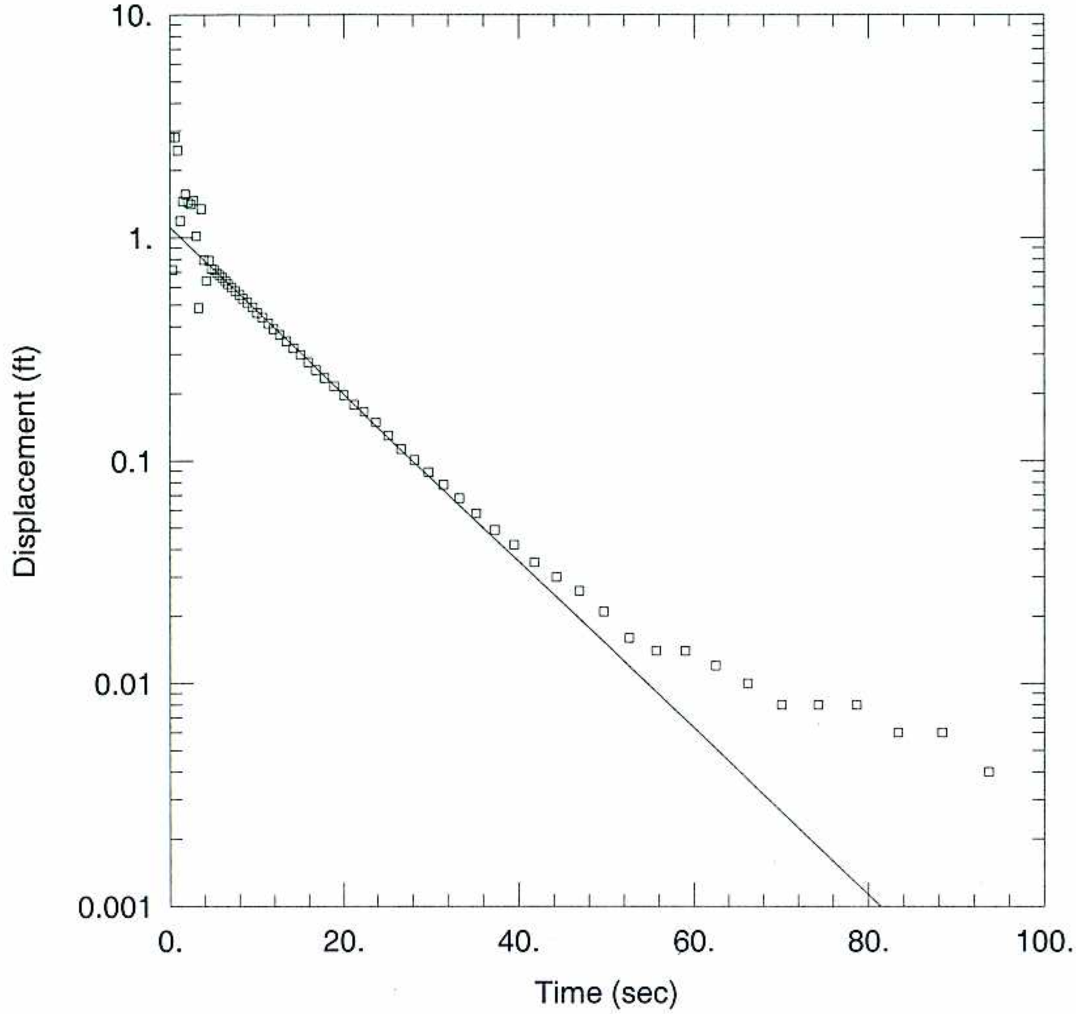
WELL DATA (MW-505D)

Initial Displacement: 4.855 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 22.2 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0059 cm/sec y0 = 1.134 ft



WELL TEST ANALYSIS

Data Set: \...\MW-505D falling.aqt
Date: 10/13/05 Time: 15:46:39

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-505D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft Anisotropy Ratio (Kz/Kr): 1.

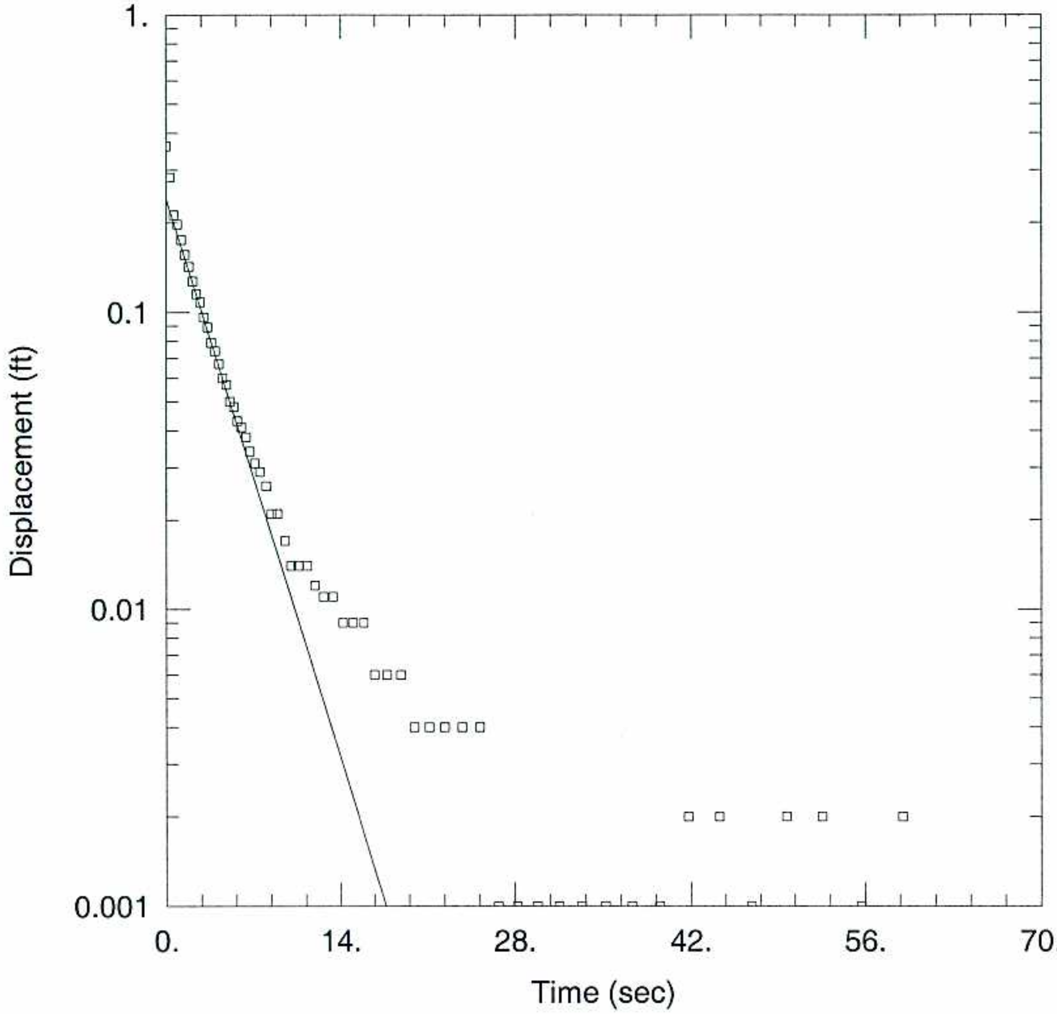
WELL DATA (MW-505D)

Initial Displacement: 2.813 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 22.2 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005385 cm/sec $y0$ = 1.112 ft



WELL TEST ANALYSIS

Data Set: \...\MW-506S rising.aqt
Date: 10/13/05 Time: 15:48:13

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Wuakegan, IL
Test Well: MW-506S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.8 ft Anisotropy Ratio (Kz/Kr): 1.

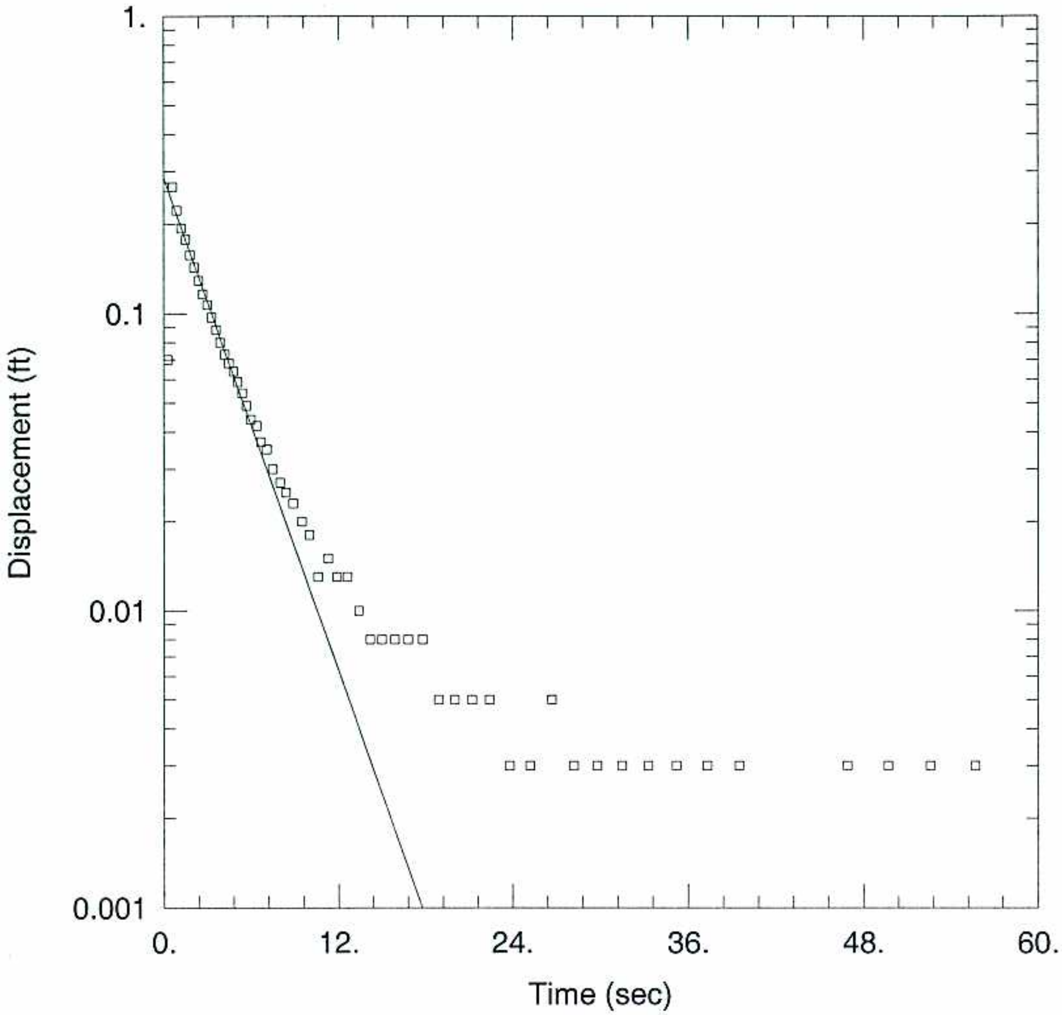
WELL DATA (MW-506S)

Initial Displacement: 0.361 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.04662 cm/sec y0 = 0.2402 ft



WELL TEST ANALYSIS

Data Set: \...\MW-506S rising2.aqt
Date: 10/13/05 Time: 15:48:04

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-506S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 1.

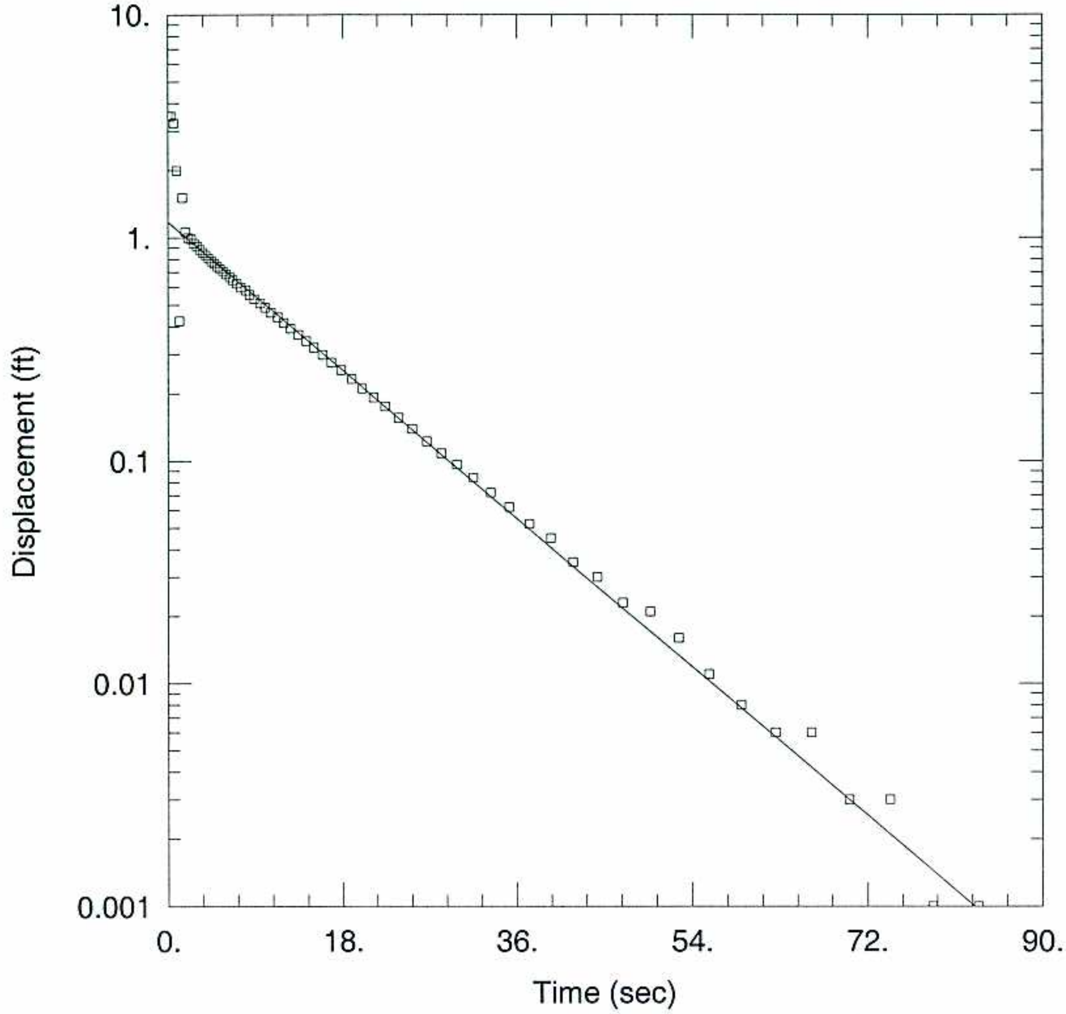
WELL DATA (MW-506S)

Initial Displacement: 0.266 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.04794 cm/sec
y0 = 0.2853 ft



WELL TEST ANALYSIS

Data Set: \...\MW-506D rising.aqt
Date: 10/13/05 Time: 15:47:14

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-506D
Test Date: 05-09-2005

AQUIFER DATA

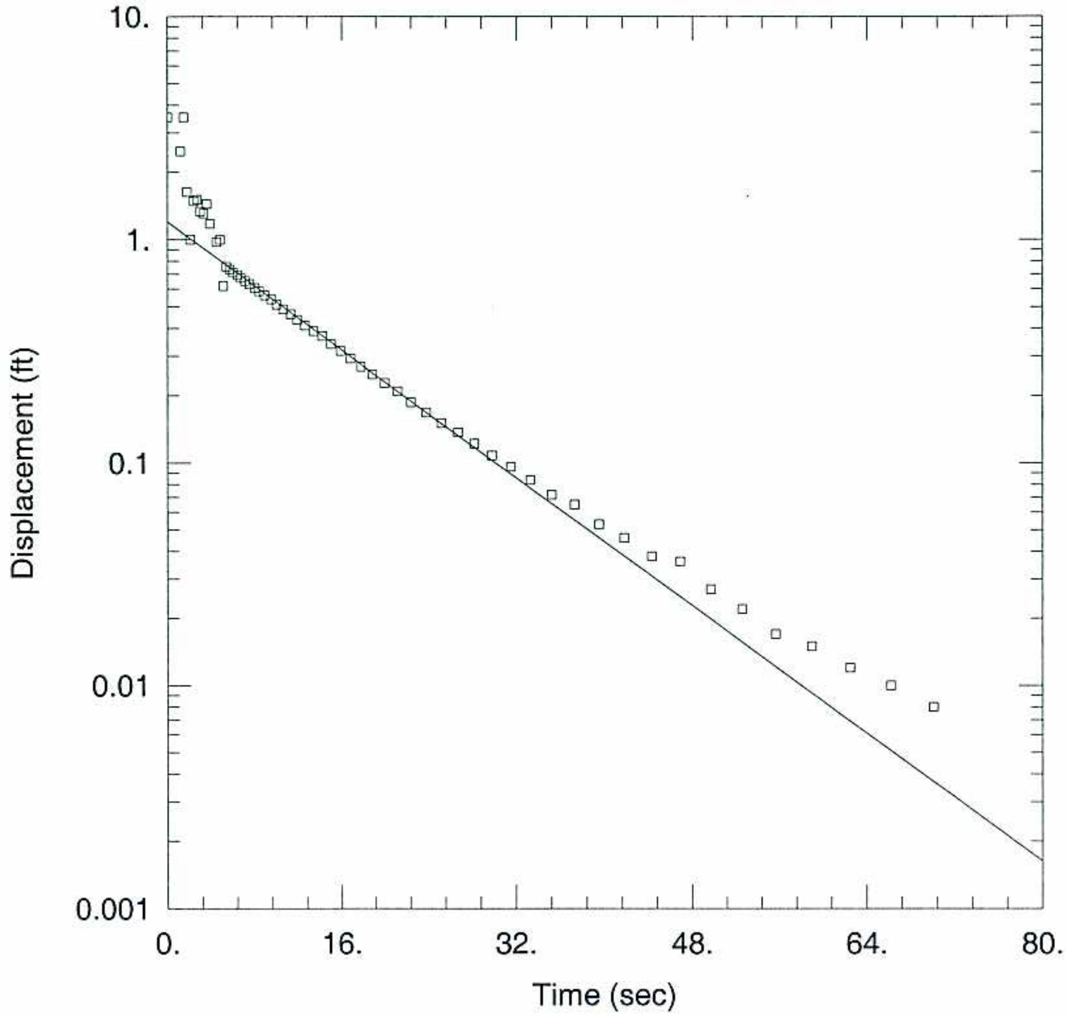
Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-506D)

Initial Displacement: 3.499 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 22.8 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005347 cm/sec
y0 = 1.178 ft



WELL TEST ANALYSIS

Data Set: \...\MW-506D falling.aqt
Date: 10/13/05 Time: 15:47:06

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-506D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 1.

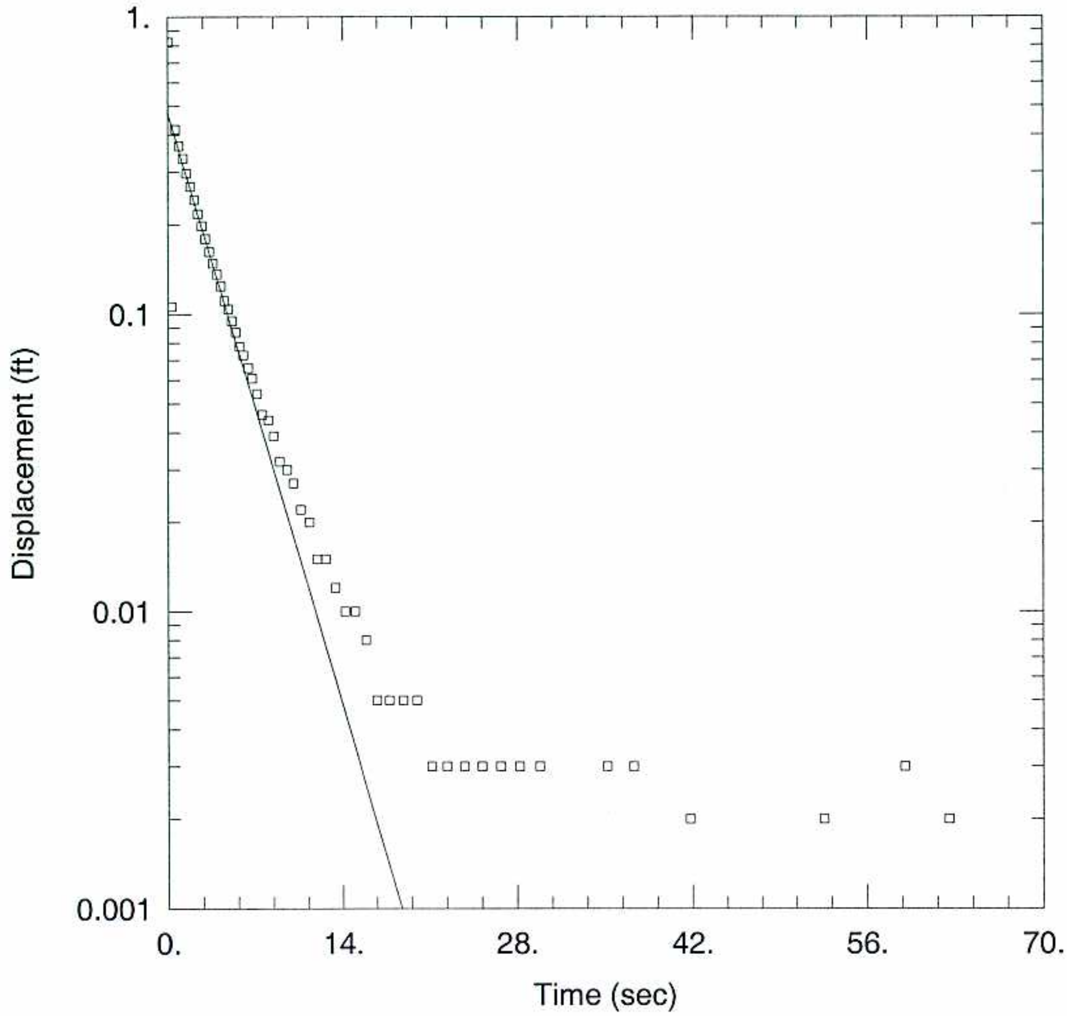
WELL DATA (MW-506D)

Initial Displacement: 3.523 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 22.8 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.005179 cm/sec
y0 = 1.199 ft



WELL TEST ANALYSIS

Data Set: \...\MW-507S rising.aqt
Date: 10/13/05 Time: 15:49:32

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-507S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.7 ft
Anisotropy Ratio (Kz/Kr): 1.

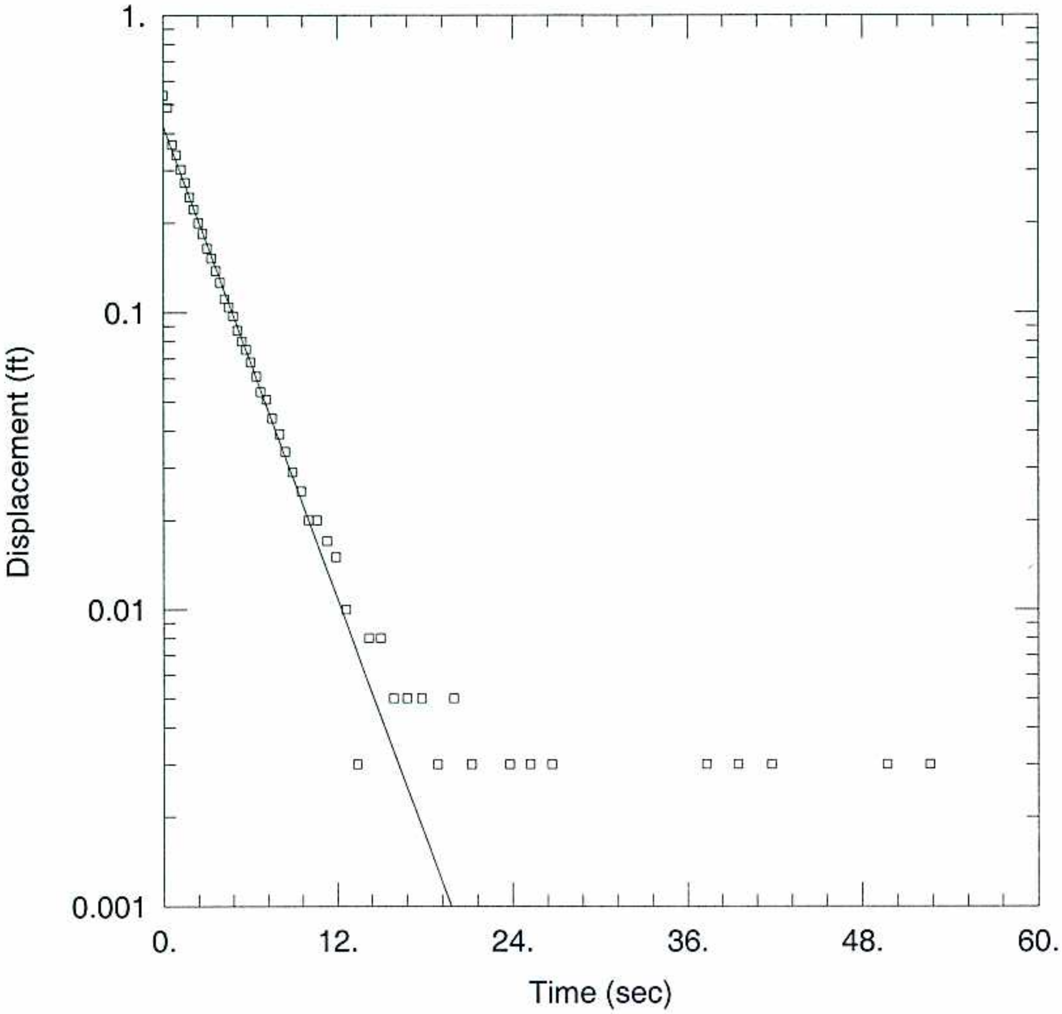
WELL DATA (MW-507S)

Initial Displacement: 0.822 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 5.5 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01219 cm/sec
y0 = 0.4716 ft



WELL TEST ANALYSIS

Data Set: \...\MW-507S rising2.aqt
Date: 10/13/05 Time: 15:48:45

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-507S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.7 ft
Anisotropy Ratio (Kz/Kr): 1.

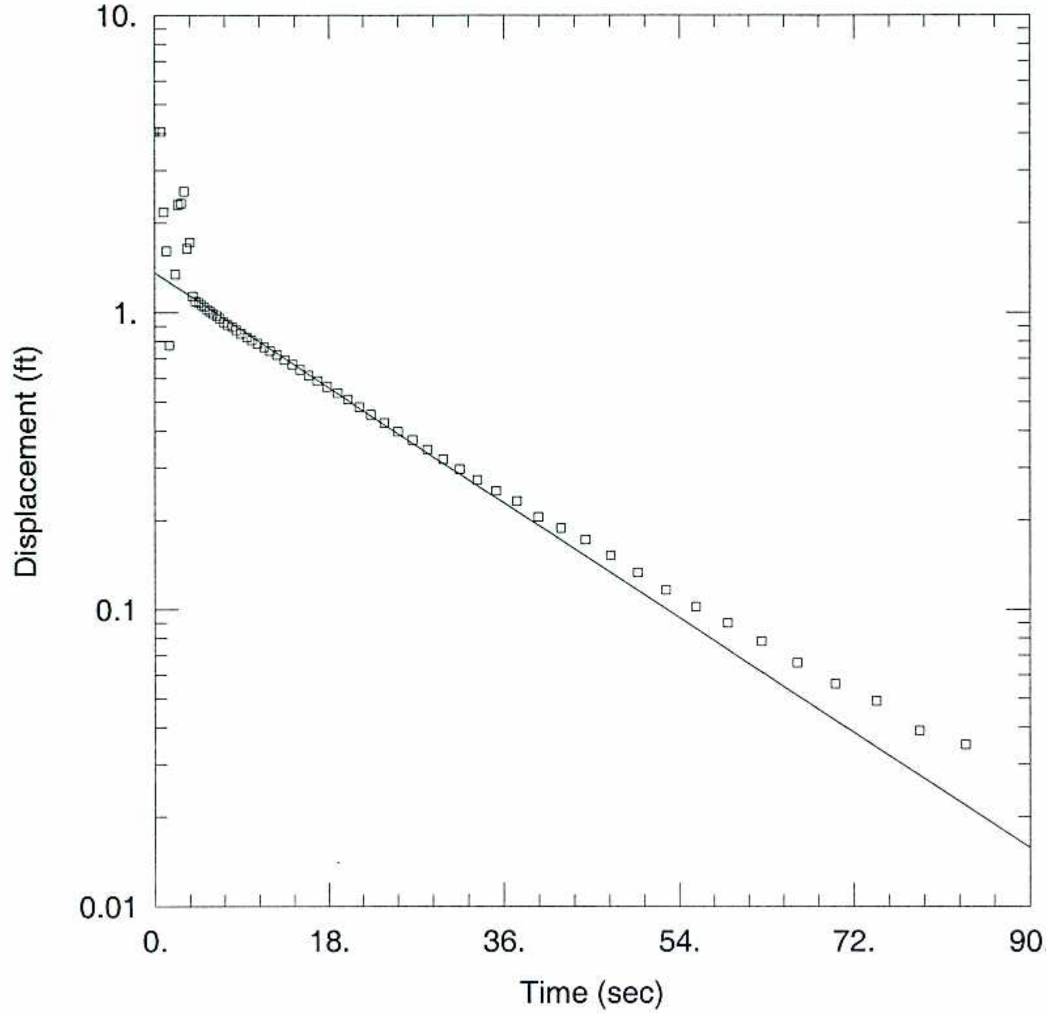
WELL DATA (MW-507S)

Initial Displacement: 0.538 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 5.5 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01136 cm/sec
y0 = 0.4231 ft



WELL TEST ANALYSIS

Data Set: \...\MW-507D rising.aqt
Date: 10/13/05 Time: 15:48:37

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-507D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.7 ft
Anisotropy Ratio (Kz/Kr): 1.

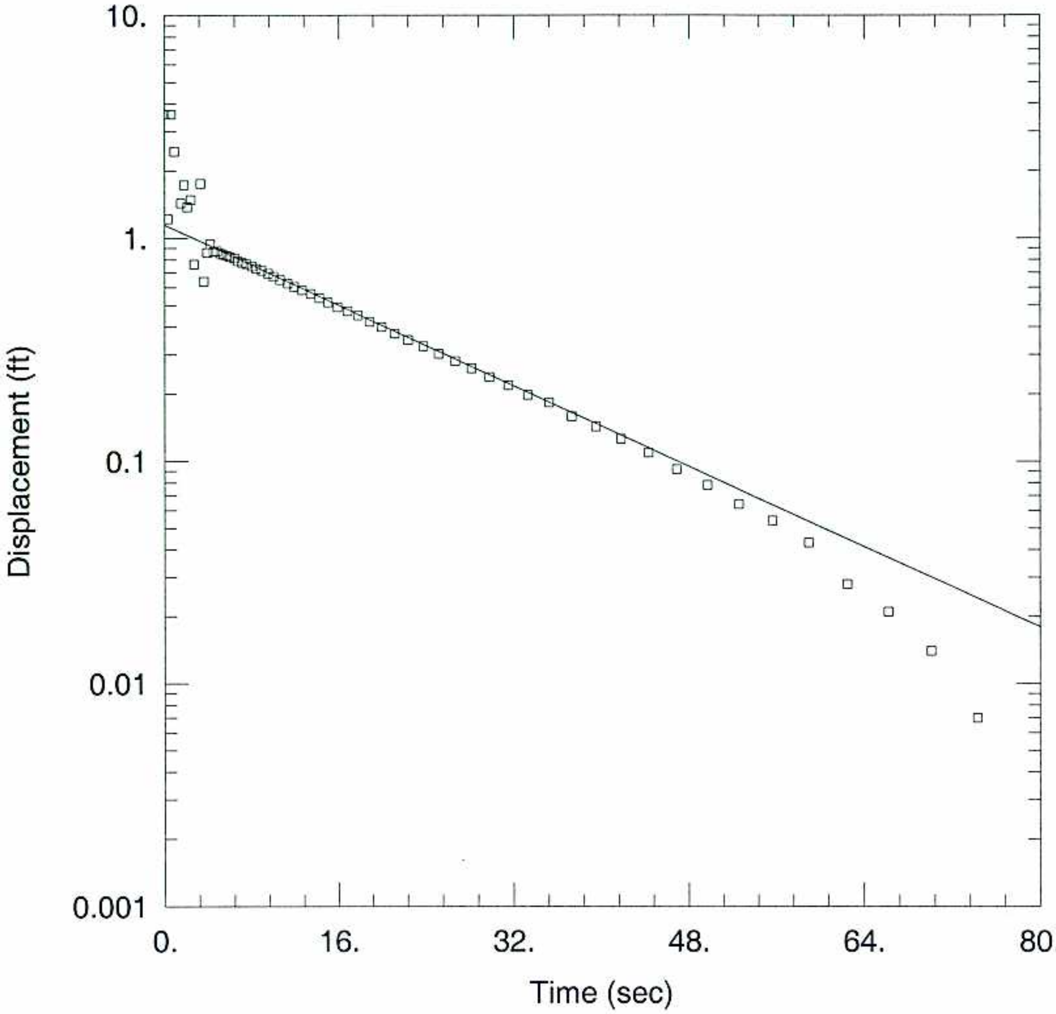
WELL DATA (MW-507D)

Initial Displacement: 4.05 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 23.7 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.003131 cm/sec
y0 = 1.361 ft



WELL TEST ANALYSIS

Data Set: \...\MW-507D Falling.aqt
Date: 10/13/05 Time: 15:48:29

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-507D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.7 ft
Anisotropy Ratio (Kz/Kr): 1.

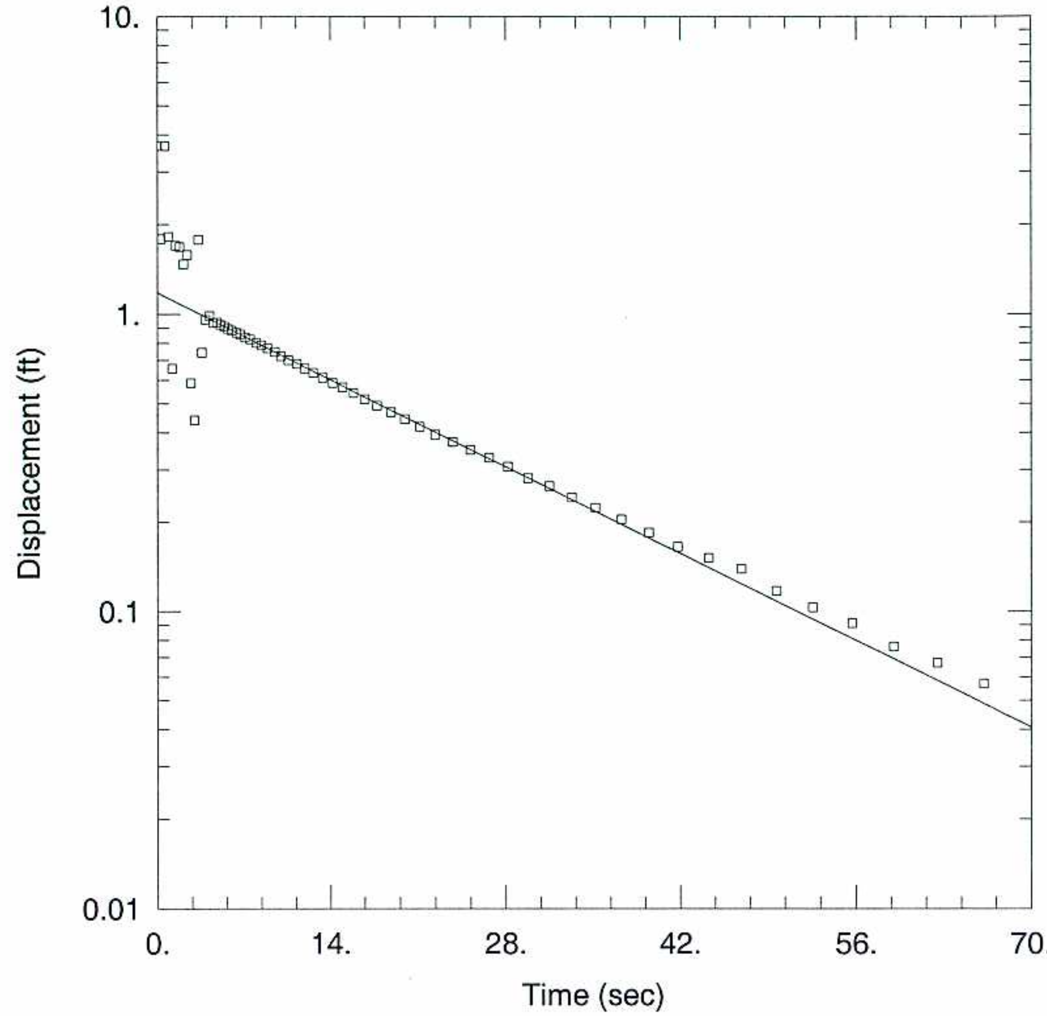
WELL DATA (MW-507D)

Initial Displacement: 3.587 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 23.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.003281 cm/sec
y0 = 1.146 ft



WELL TEST ANALYSIS

Data Set: \...\MW-507D Falling2.aqt
Date: 10/13/05
Time: 15:48:21

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-507D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 23.7 ft
Anisotropy Ratio (Kz/Kr): 1.

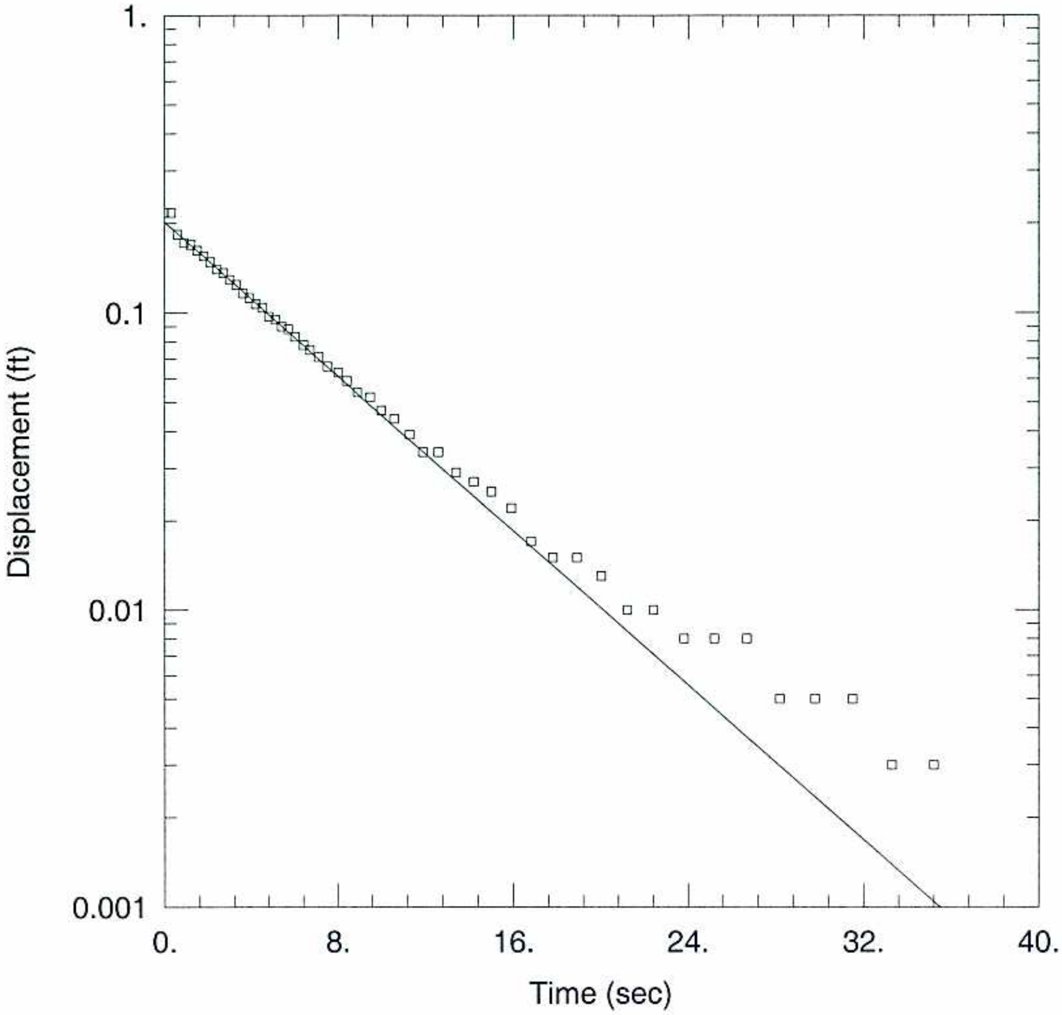
WELL DATA (MW-507D)

Initial Displacement: 3.66 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 23.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.003038 cm/sec
y0 = 1.178 ft



WELL TEST ANALYSIS

Data Set: \...\MW-508S rising.aqt
Date: 10/13/05 Time: 15:49:58

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-508S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft
Anisotropy Ratio (Kz/Kr): 1.

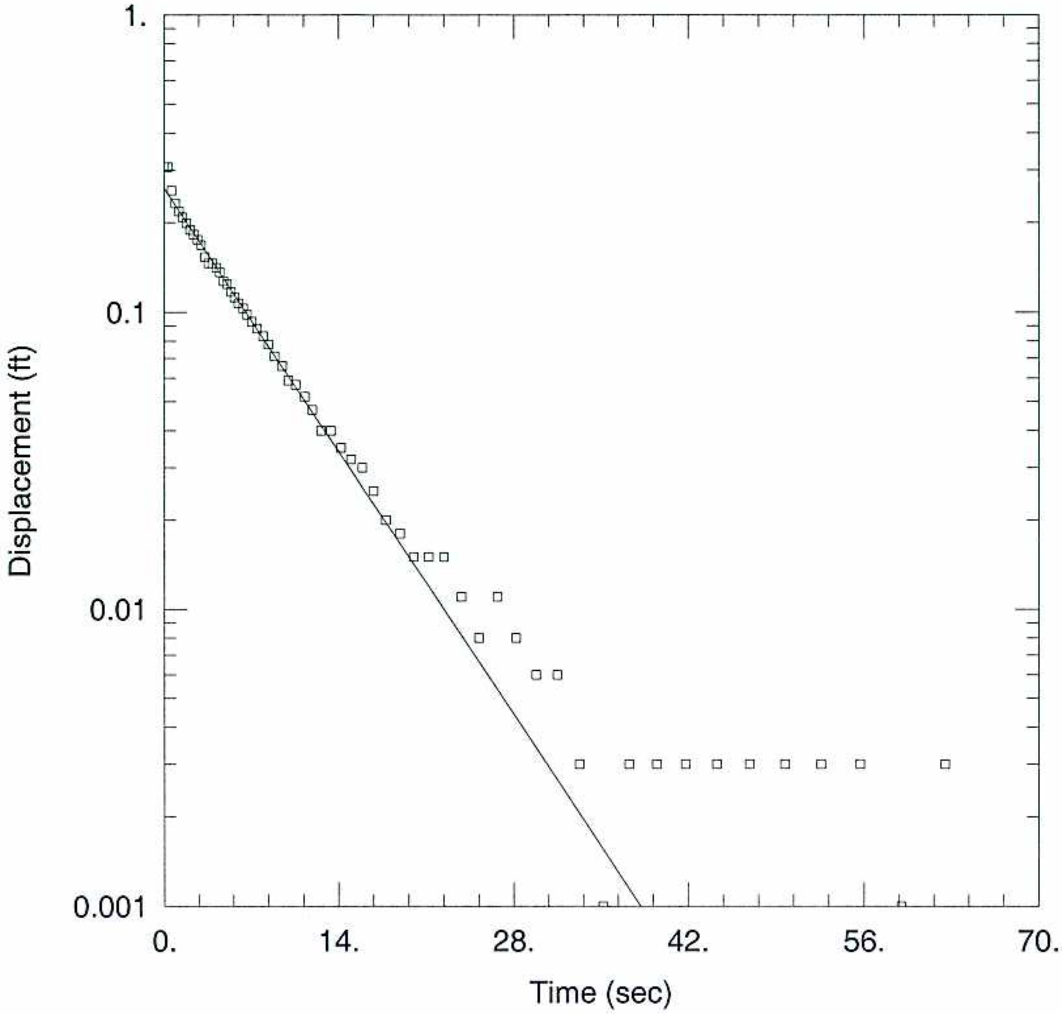
WELL DATA (MW-508S)

Initial Displacement: 0.217 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.5 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0221 cm/sec
y0 = 0.2021 ft



WELL TEST ANALYSIS

Data Set: \...\MW-508S rising2.aqt
Date: 10/13/05 Time: 15:49:52

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-508S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft
Anisotropy Ratio (Kz/Kr): 1.

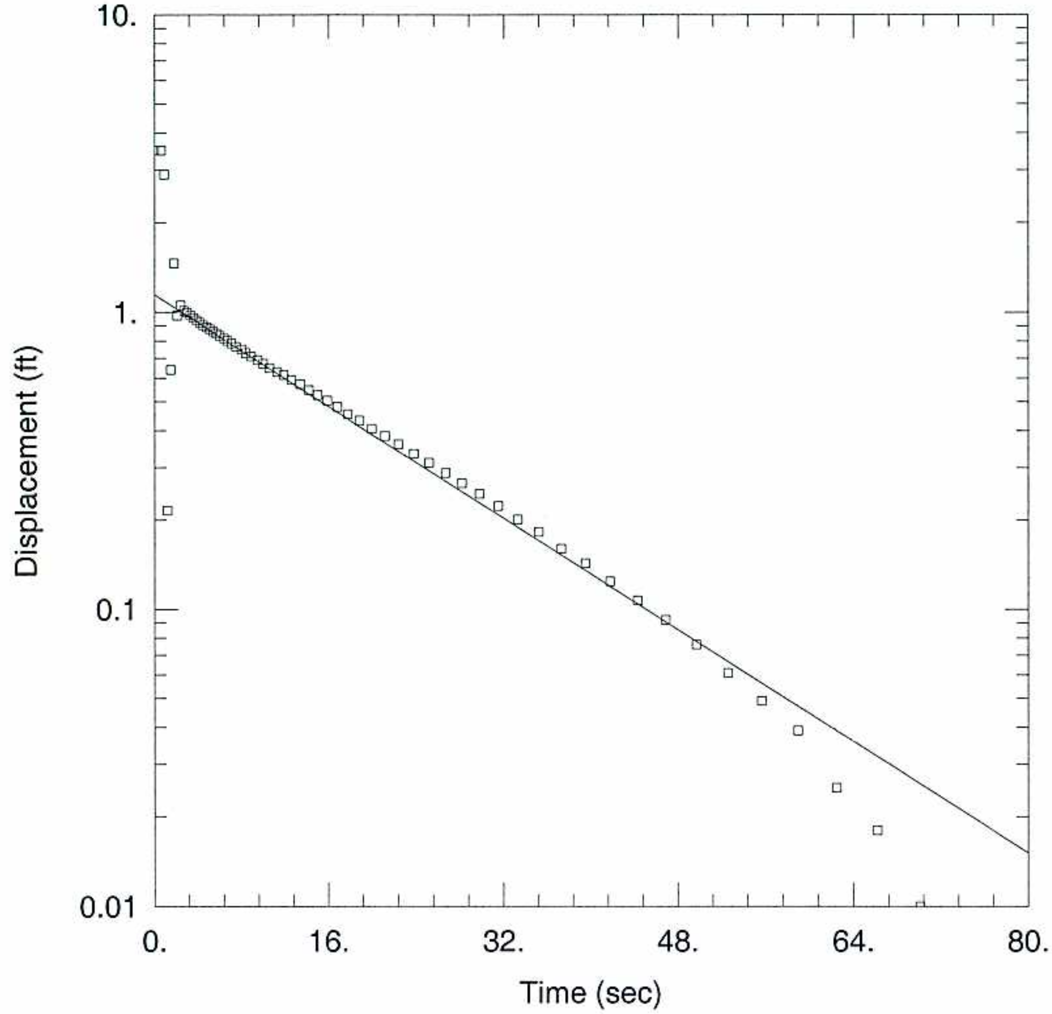
WELL DATA (MW-508S)

Initial Displacement: 0.307 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.5 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0215 cm/sec
y0 = 0.2609 ft



WELL TEST ANALYSIS

Data Set: \...\MW-508D rising.aqt
Date: 10/13/05 Time: 15:49:45

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-508D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft Anisotropy Ratio (Kz/Kr): 1.

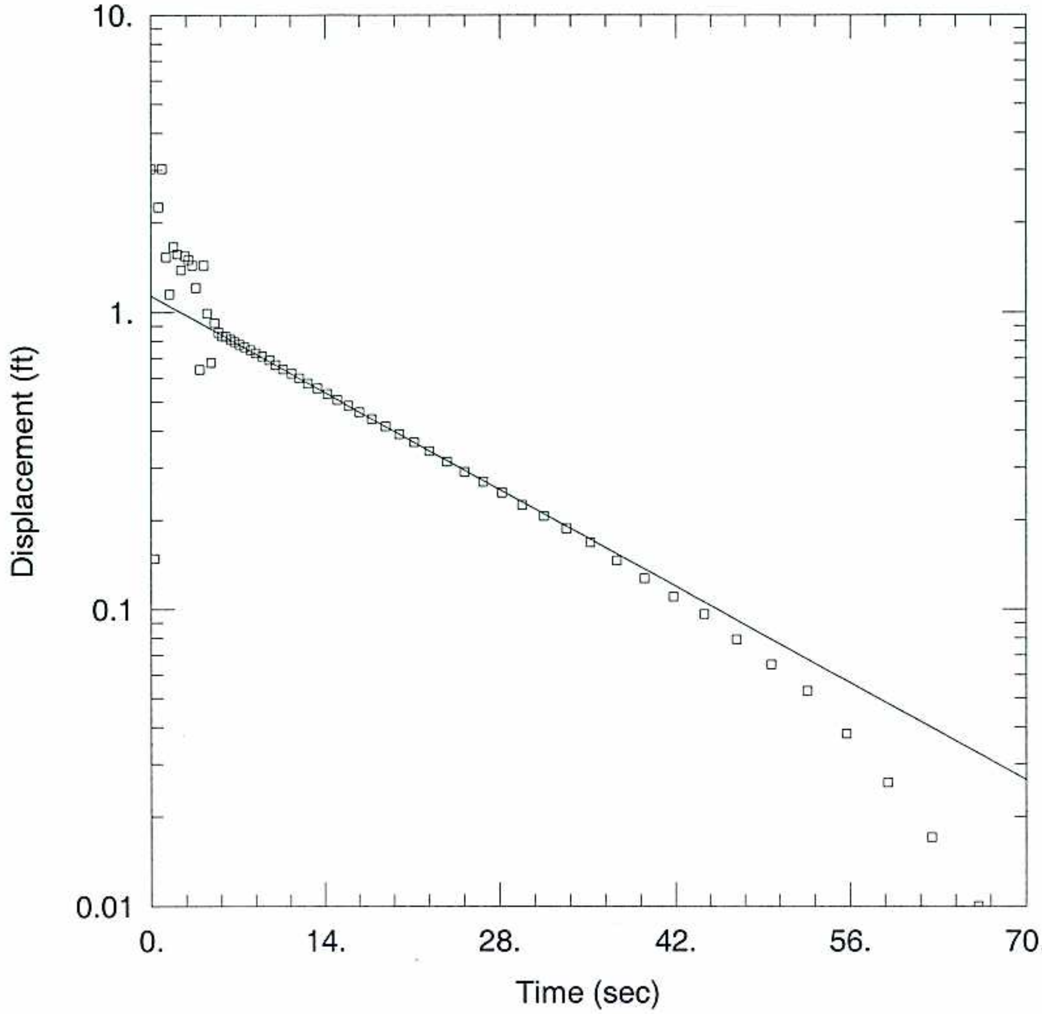
WELL DATA (MW-508D)

Initial Displacement: 3.488 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 26. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003472 cm/sec y0 = 1.145 ft



WELL TEST ANALYSIS

Data Set: \...\MW-508D Falling.aqt
Date: 10/13/05 Time: 15:49:39

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-508D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 26. ft
Anisotropy Ratio (Kz/Kr): 1.

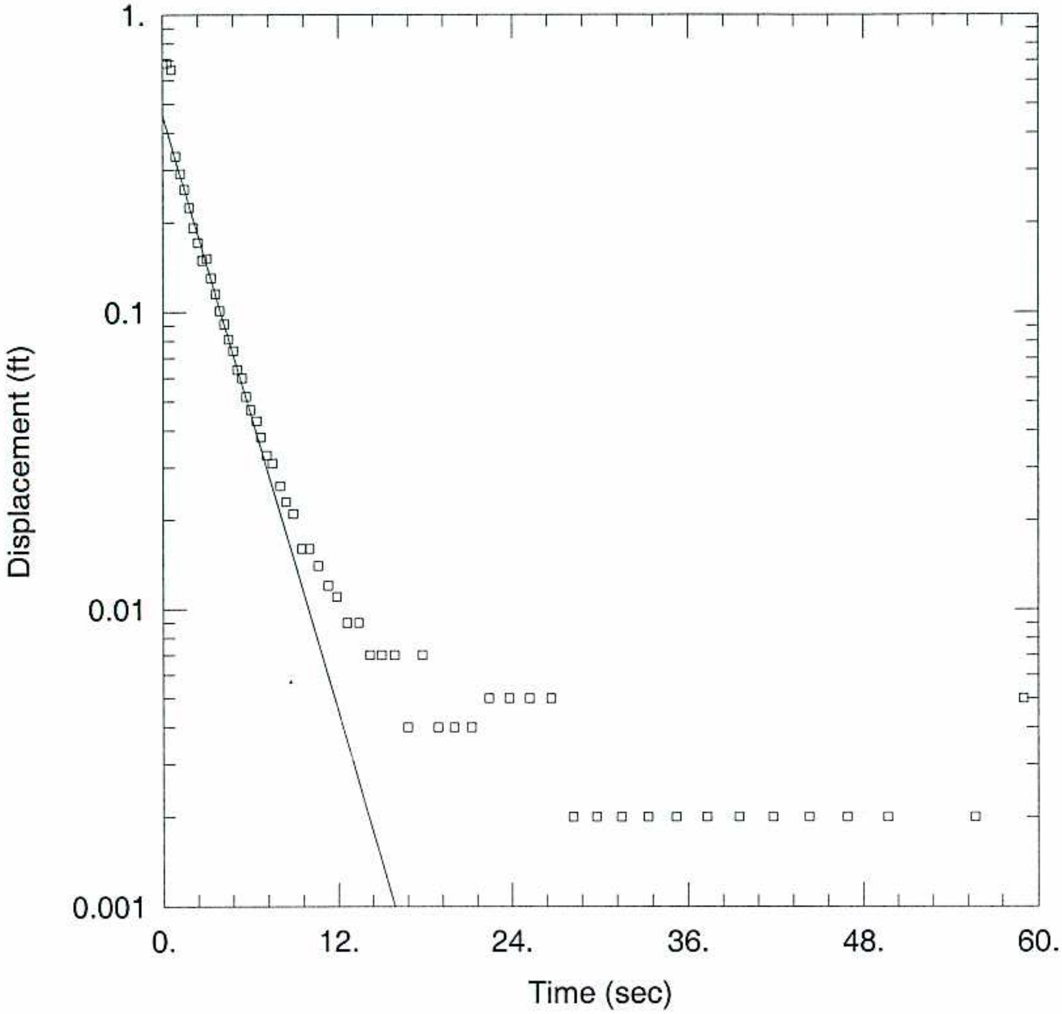
WELL DATA (MW-508D)

Initial Displacement: 3.034 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 26. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.00344 cm/sec
y0 = 1.135 ft



WELL TEST ANALYSIS

Data Set: \...\MW-509S rising.aqt
Date: 10/13/05 Time: 15:50:48

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-509S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19.1 ft
Anisotropy Ratio (Kz/Kr): 1.

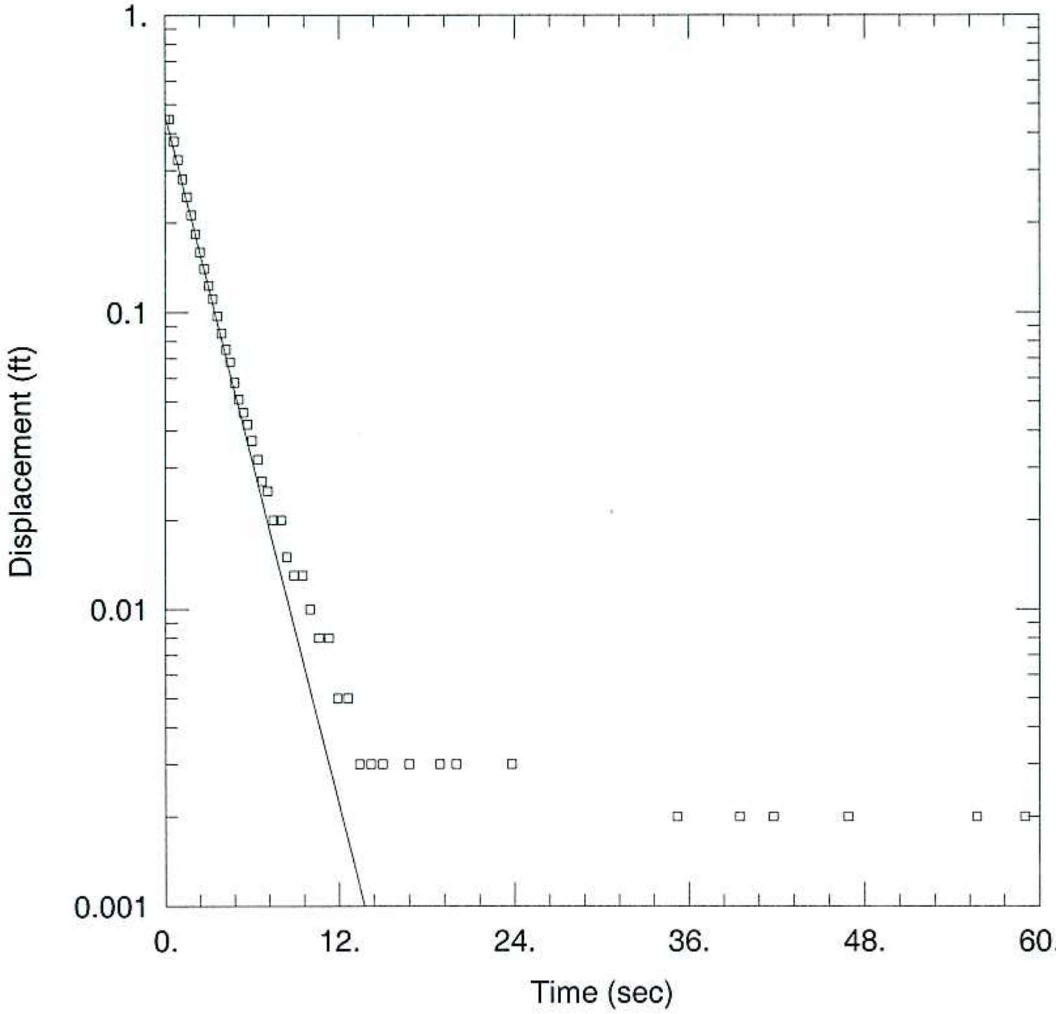
WELL DATA (MW-509S)

Initial Displacement: 0.685 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 6.6 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0151 cm/sec
y0 = 0.4568 ft



WELL TEST ANALYSIS

Data Set: \...\MW-509S rising2.aqt
Date: 10/13/05 Time: 15:50:42

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-509S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19.1 ft Anisotropy Ratio (Kz/Kr): 1.

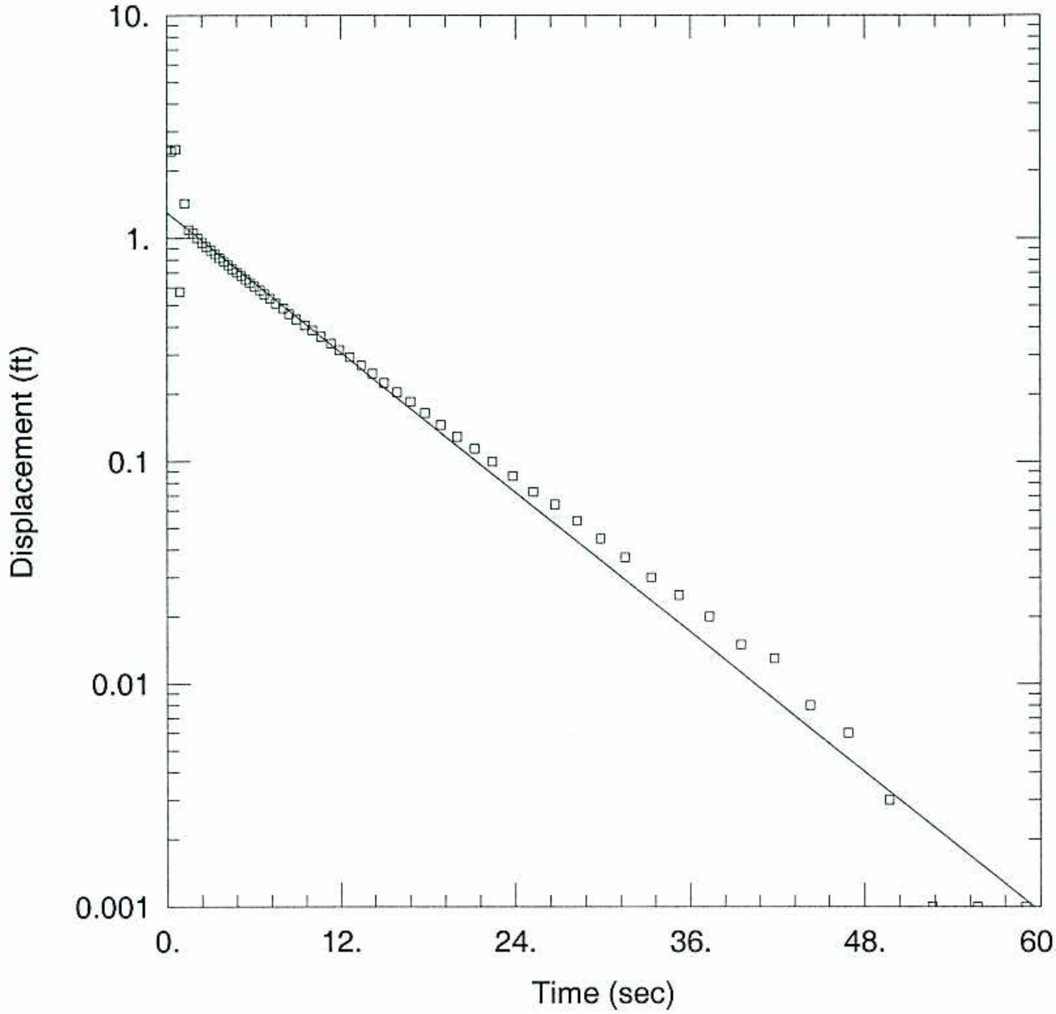
WELL DATA (MW-509S)

Initial Displacement: 0.446 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 6.6 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01751 cm/sec y0 = 0.4615 ft



WELL TEST ANALYSIS

Data Set: \...\MW-509D Rising.aqt
Date: 10/13/05 Time: 15:50:35

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-509D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19.1 ft Anisotropy Ratio (Kz/Kr): 1.

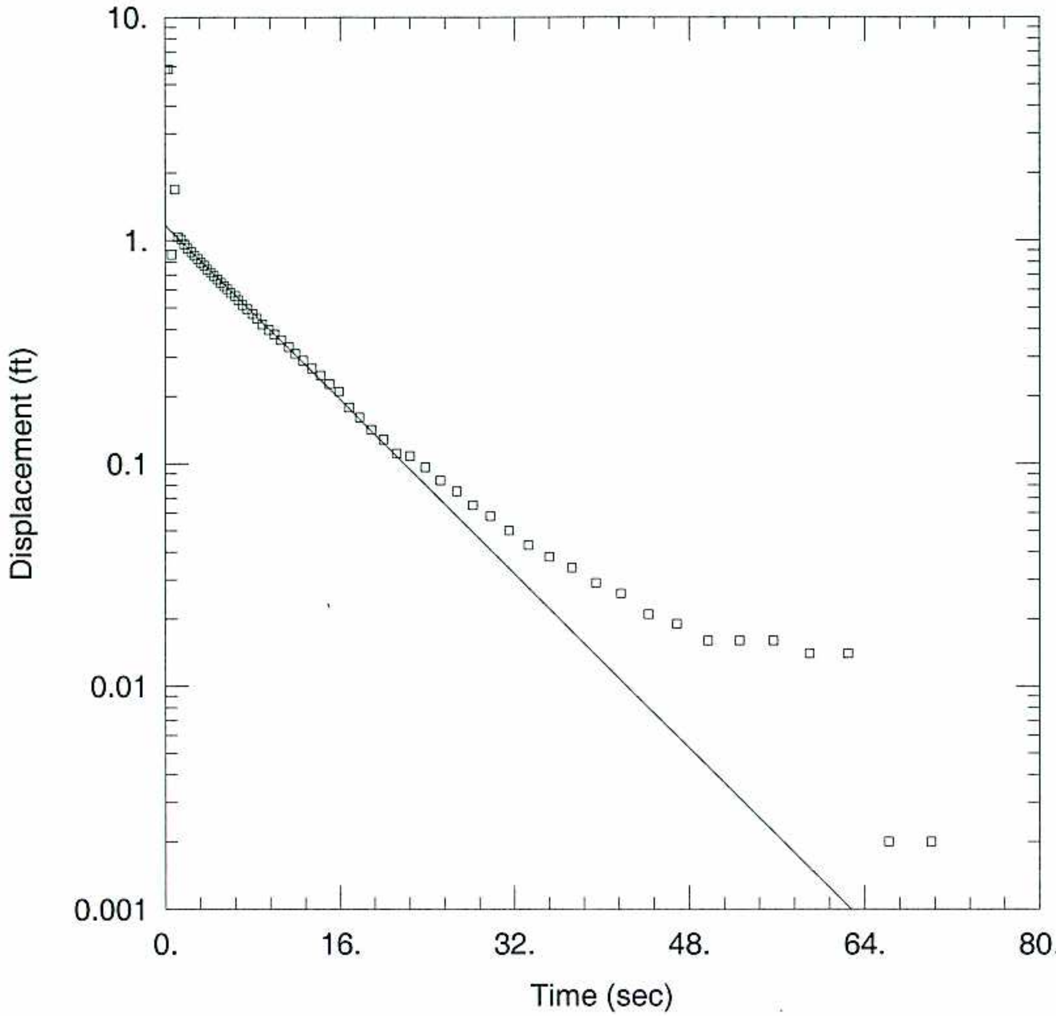
WELL DATA (MW-509D)

Initial Displacement: 2.495 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 19.1 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.007326 cm/sec y0 = 1.302 ft



WELL TEST ANALYSIS

Data Set: \...\MW-509D Rising2.aqt
Date: 10/13/05 Time: 15:50:28

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-509D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19.1 ft
Anisotropy Ratio (Kz/Kr): 1.

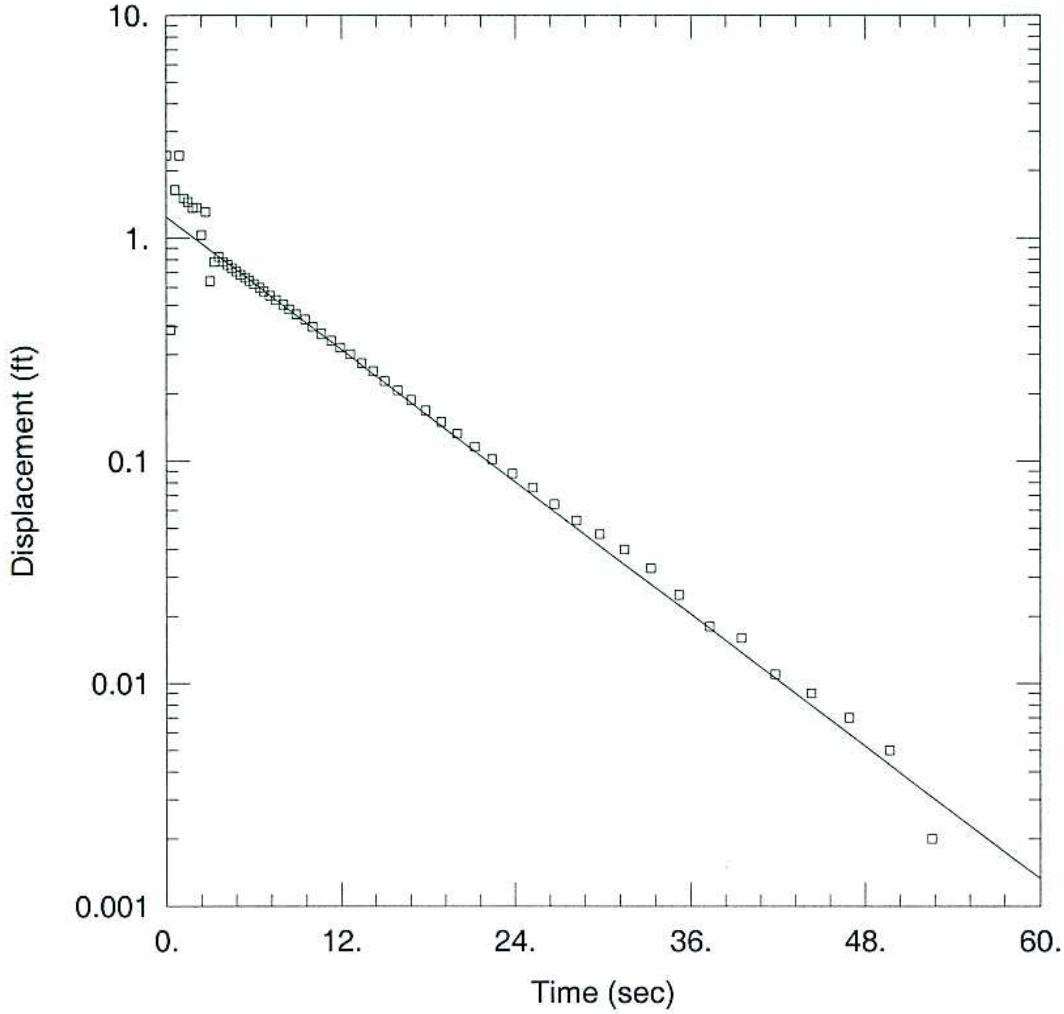
WELL DATA (MW-509D)

Initial Displacement: 5.835 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 19.1 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006849 cm/sec
y0 = 1.169 ft



WELL TEST ANALYSIS

Data Set: \...\MW-509D Falling.aqt
Date: 10/13/05 Time: 15:50:21

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-509D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19.1 ft
Anisotropy Ratio (Kz/Kr): 1.

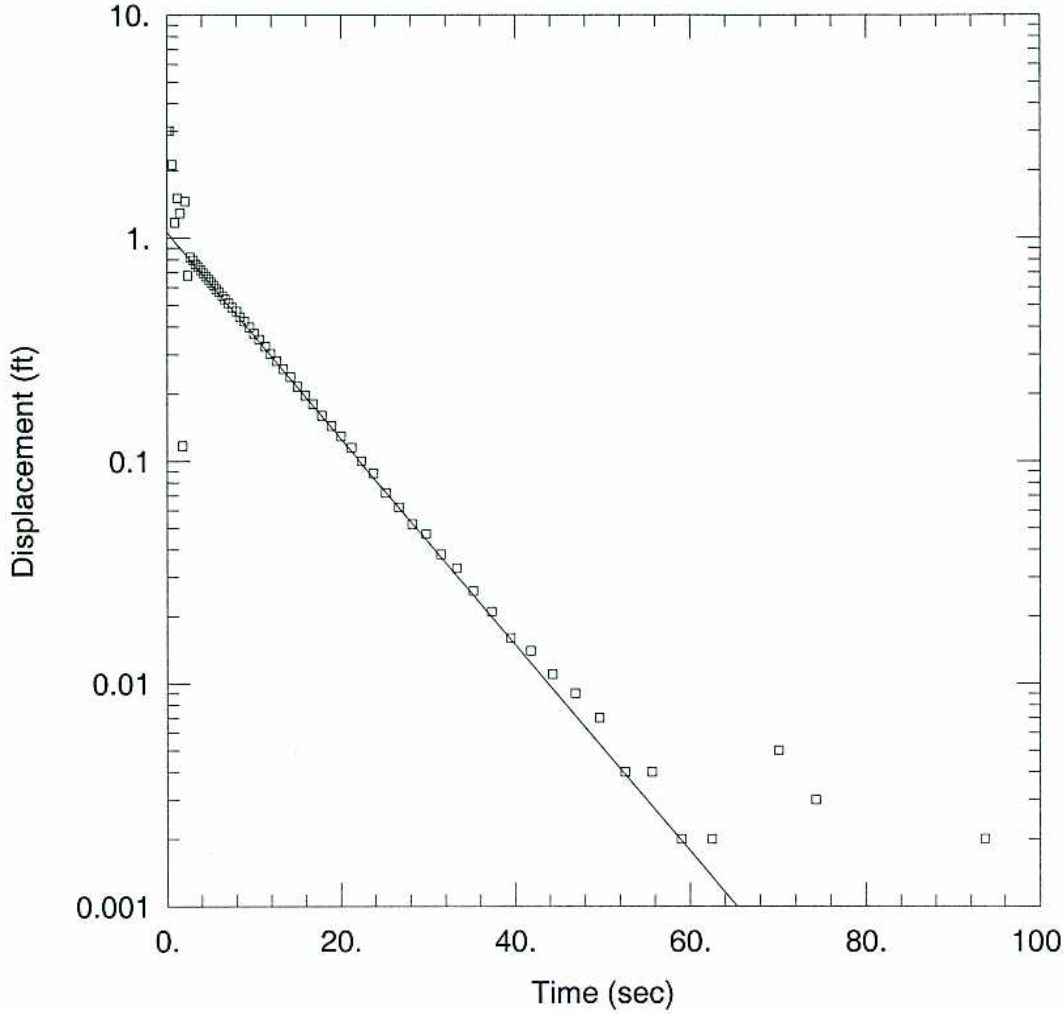
WELL DATA (MW-509D)

Initial Displacement: 2.339 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 19.1 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006939 cm/sec
y0 = 1.242 ft



WELL TEST ANALYSIS

Data Set: \...\MW-509D Falling2.aqt
Date: 10/13/05 Time: 15:50:09

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-509D
Test Date: 05-09-2005

AQUIFER DATA

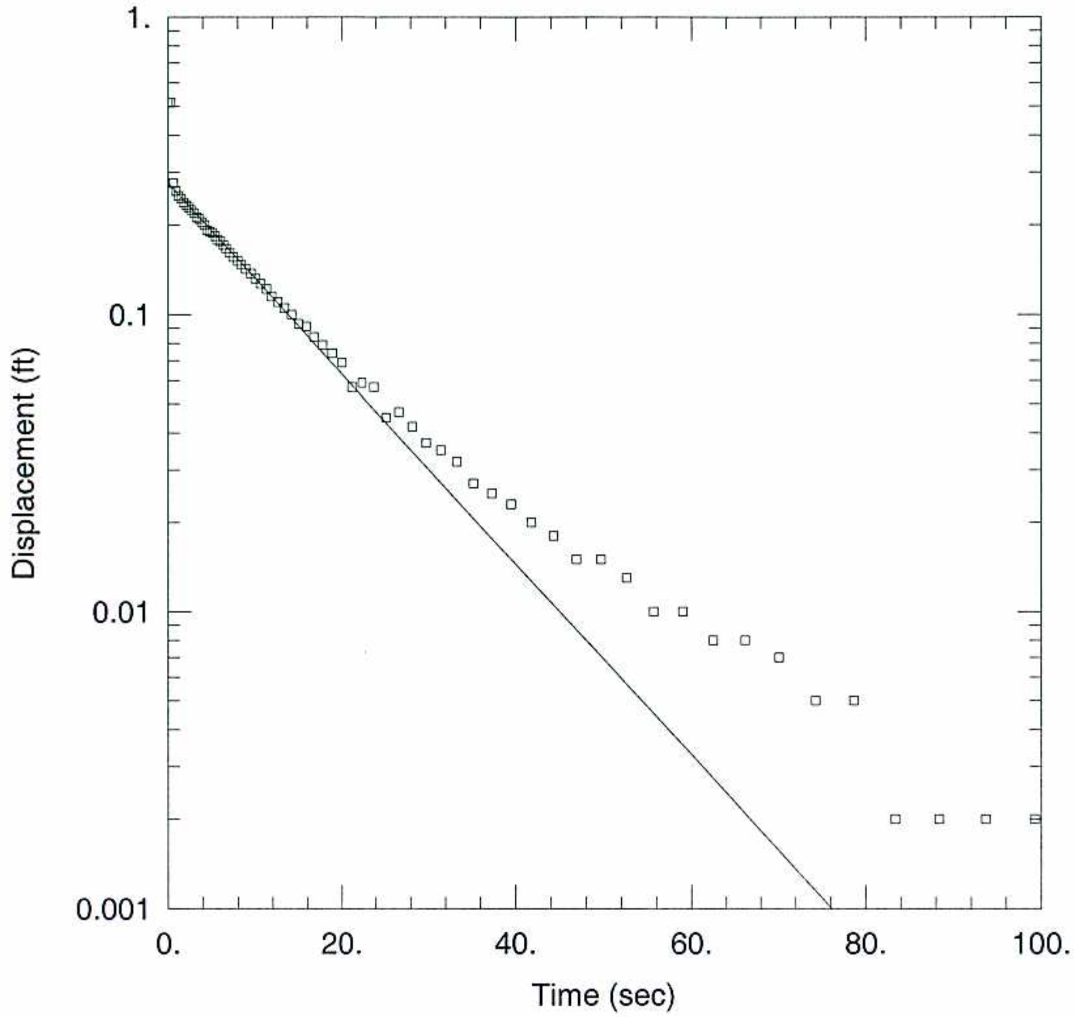
Saturated Thickness: 19.1 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-509D)

Initial Displacement: 3.015 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 19.1 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.006482 cm/sec
y0 = 1.058 ft



WELL TEST ANALYSIS

Data Set: \...\MW-510S rising.aqt
Date: 10/13/05 Time: 15:51:14

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-510S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.7 ft
Anisotropy Ratio (Kz/Kr): 1.

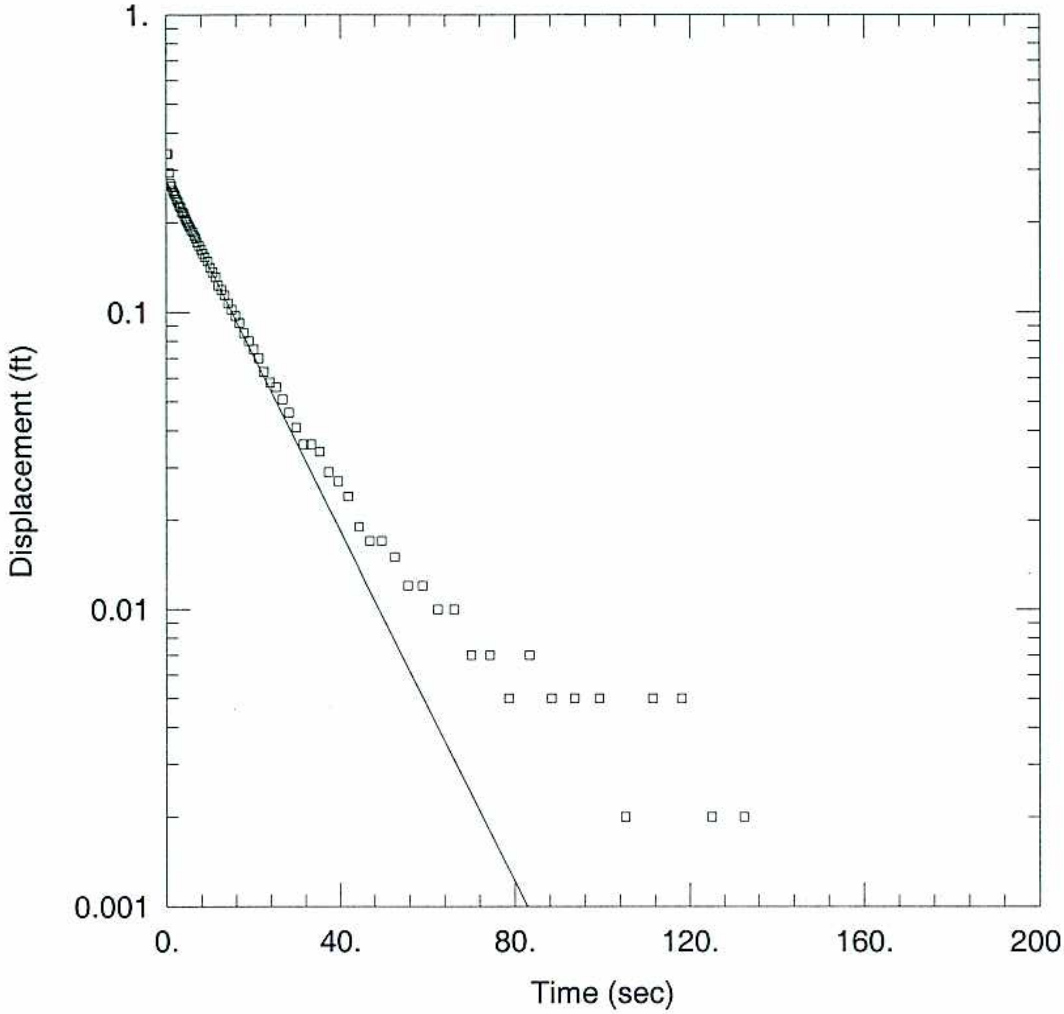
WELL DATA (MW-510S)

Initial Displacement: 0.515 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01116 cm/sec
y0 = 0.2768 ft



WELL TEST ANALYSIS

Data Set: \...\MW-510S rising2.aqt
Date: 10/13/05 | Time: 15:51:08

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-510S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 21.7 ft | Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-510S)

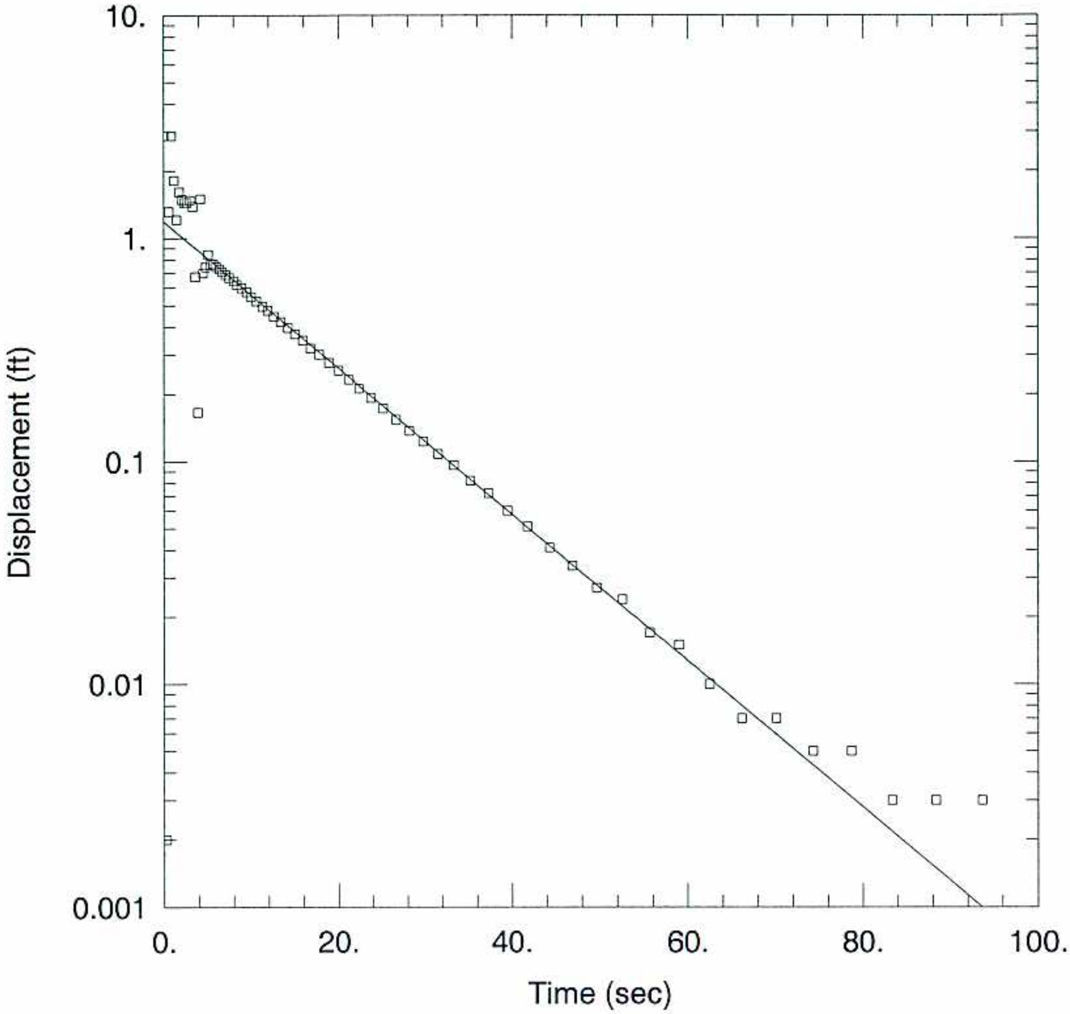
Initial Displacement: 0.34 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25

Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 3.7 ft

SOLUTION

Aquifer Model: Unconfined | Solution Method: Bouwer-Rice

K = 0.01025 cm/sec | y0 = 0.2767 ft



WELL TEST ANALYSIS

Data Set: \...\MW-510D falling.aqt
Date: 10/13/05 Time: 15:50:55

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-510D
Test Date: 05-09-2005

AQUIFER DATA

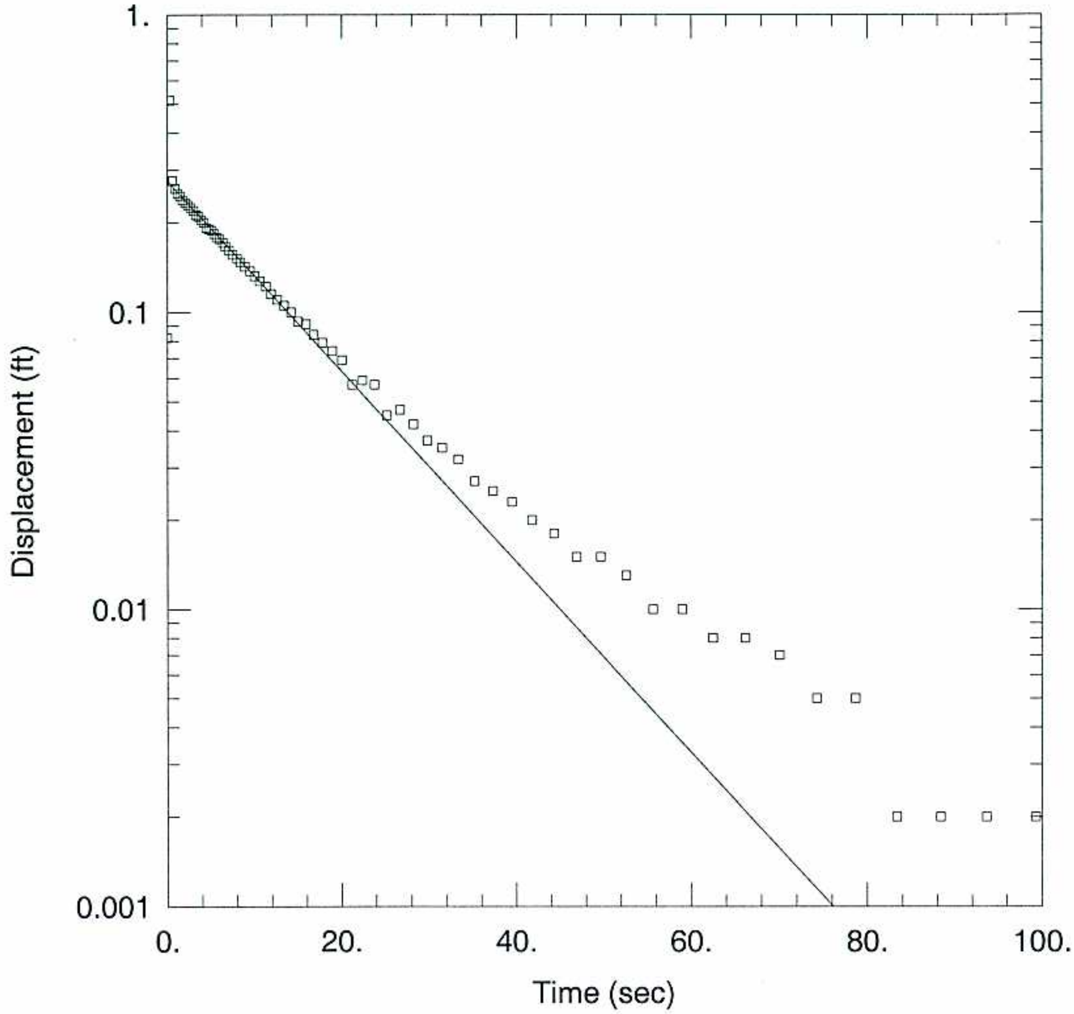
Saturated Thickness: 21.7 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-510D)

Initial Displacement: 2.874 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 21.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004705 cm/sec
y0 = 1.187 ft



WELL TEST ANALYSIS

Data Set: \...\MW-511S rising.aqt
Date: 10/13/05 Time: 15:51:43

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-511S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft
Anisotropy Ratio (Kz/Kr): 1.

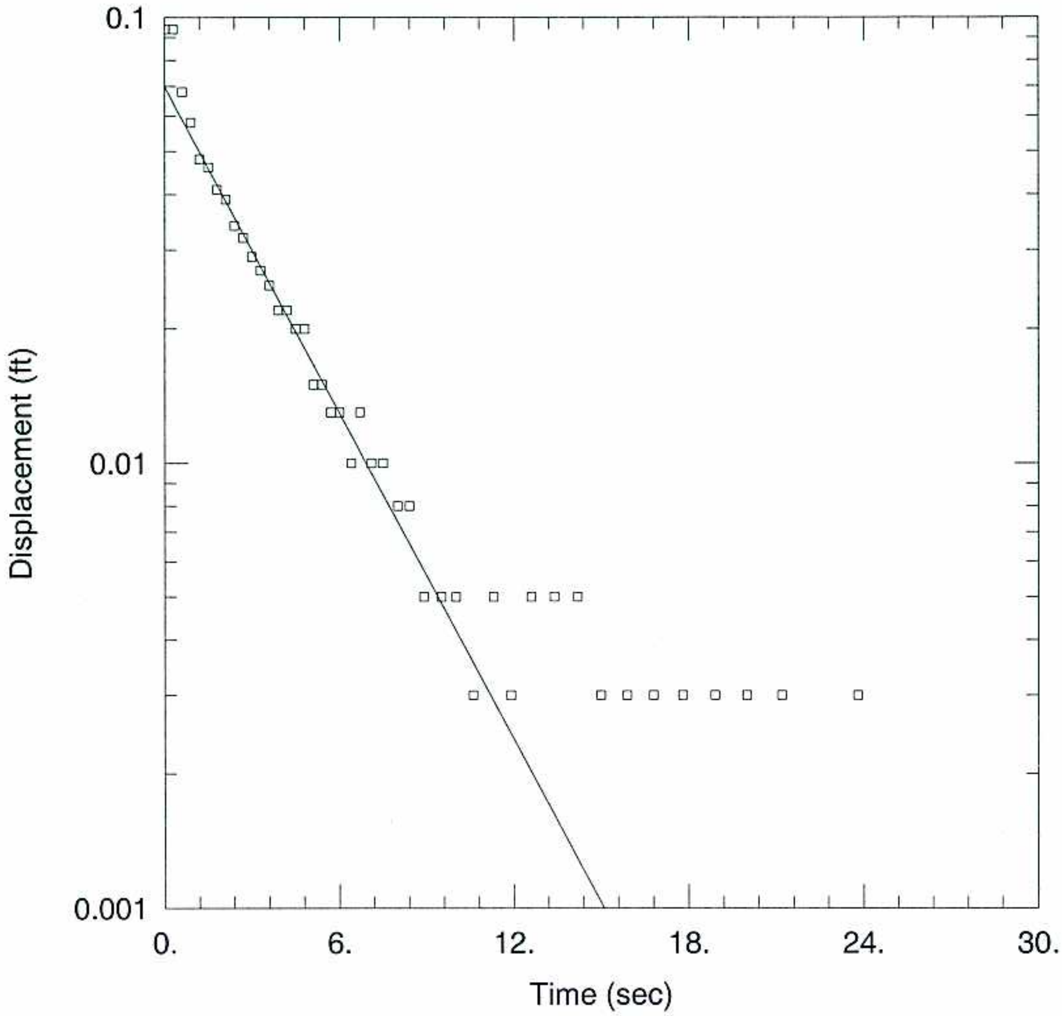
WELL DATA (MW-511S)

Initial Displacement: 0.082 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01077 cm/sec
y0 = 0.2768 ft



WELL TEST ANALYSIS

Data Set: \...\MW-511S rising2.aqt
Date: 10/13/05 Time: 15:51:37

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-511S
Test Date: 05-09-2005

AQUIFER DATA

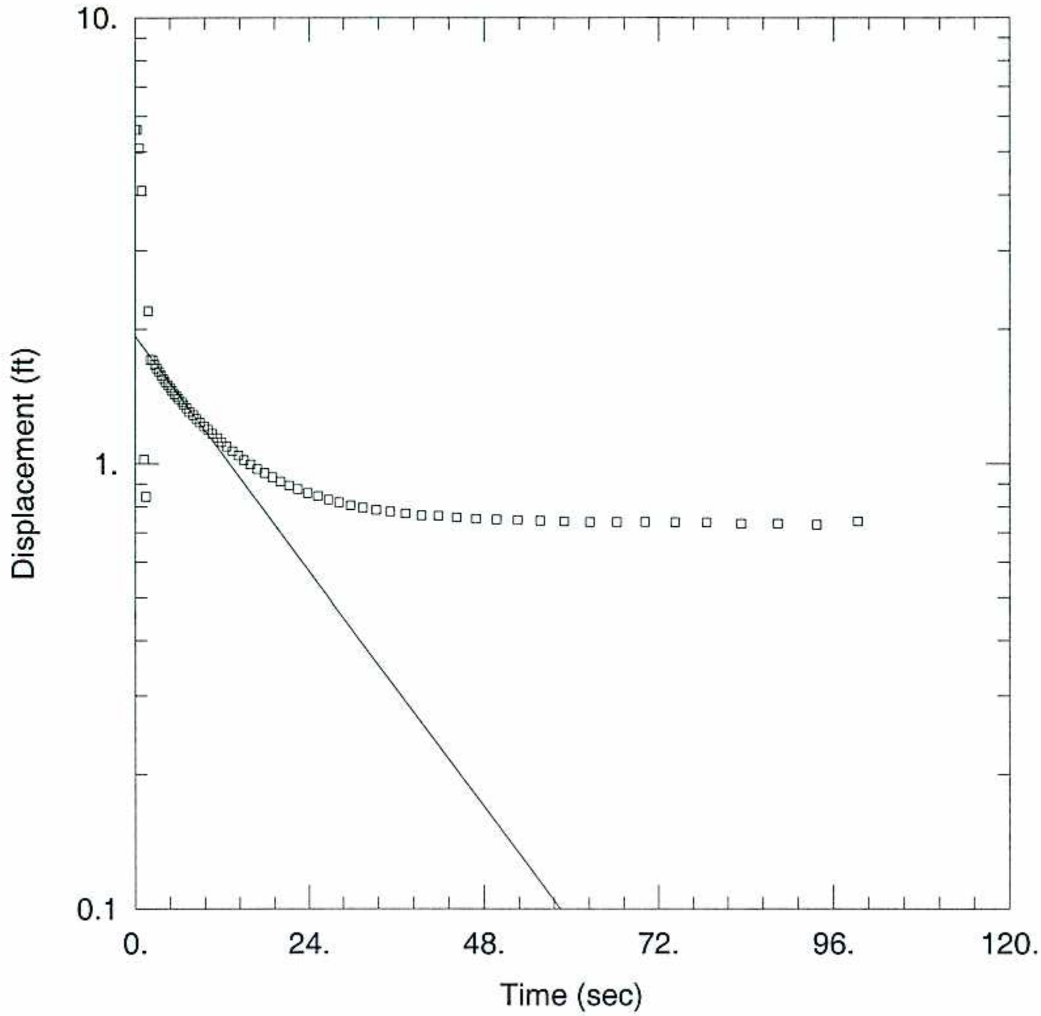
Saturated Thickness: 22.2 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-511S)

Initial Displacement: 0.094 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 3.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04099 cm/sec
y0 = 0.06975 ft



WELL TEST ANALYSIS

Data Set: \...\MW-511D rising.aqt
Date: 10/13/05 Time: 15:51:31

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-511D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft Anisotropy Ratio (Kz/Kr): 1.

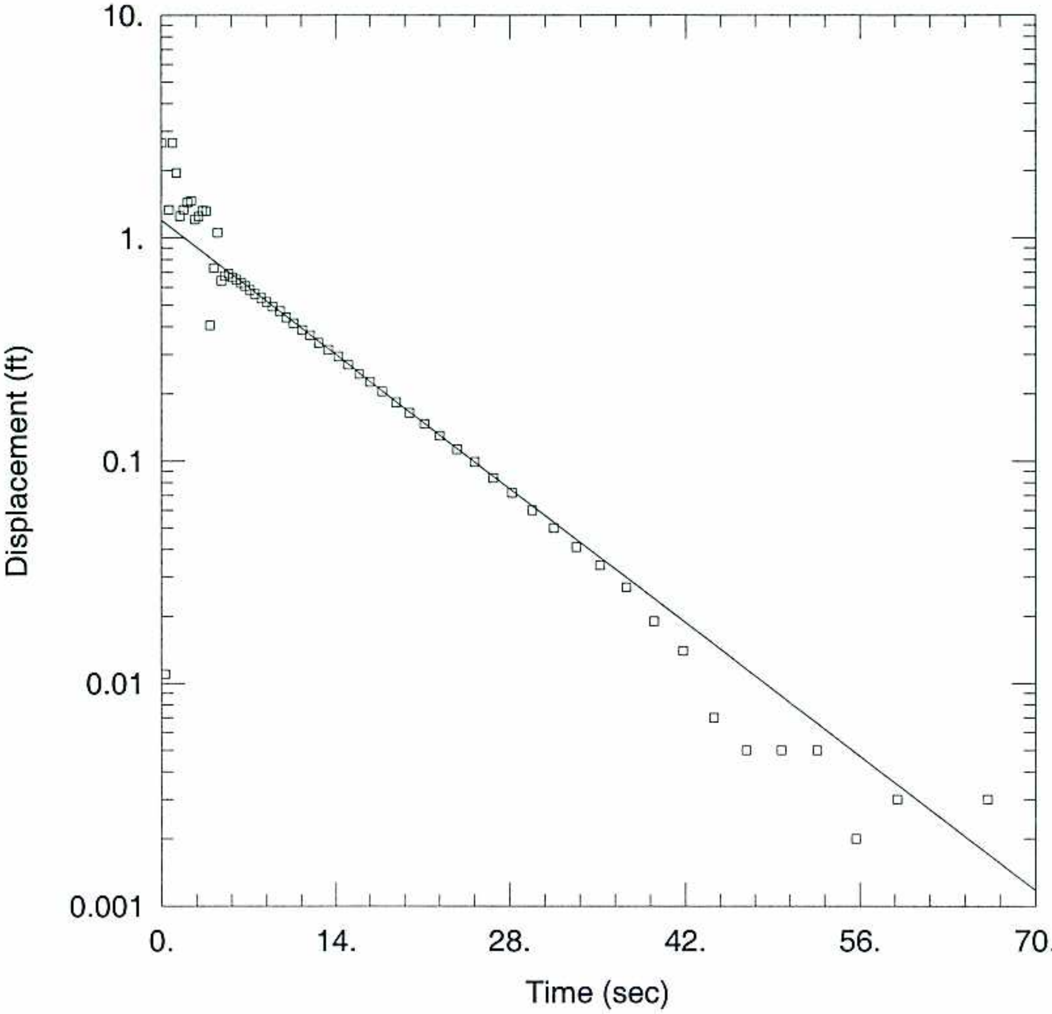
WELL DATA (MW-511D)

Initial Displacement: 5.608 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 22.2 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003164 cm/sec y0 = 1.929 ft



WELL TEST ANALYSIS

Data Set: \...\MW-511D Falling.aqt
Date: 10/13/05 Time: 15:51:21

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-511D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.2 ft
Anisotropy Ratio (Kz/Kr): 1.

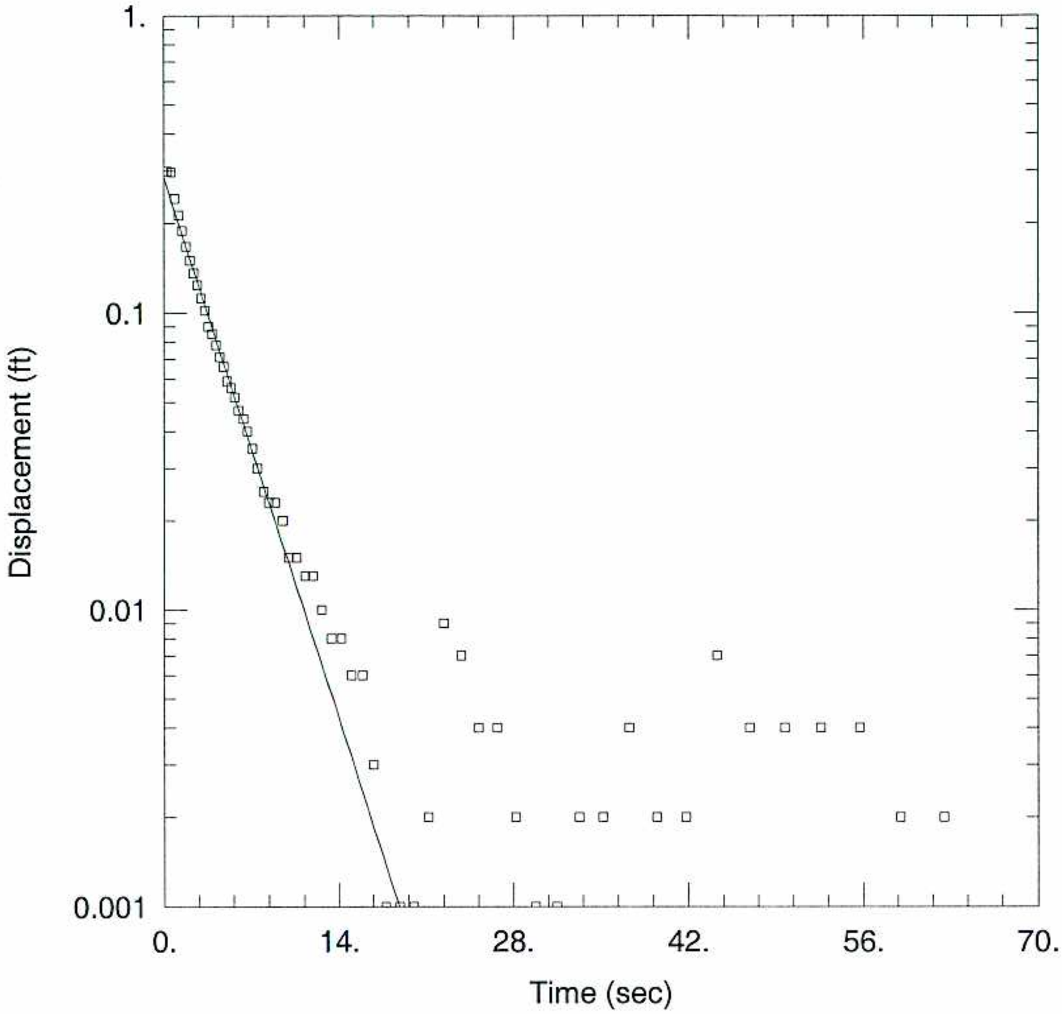
WELL DATA (MW-511D)

Initial Displacement: 2.662 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 22.2 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006185 cm/sec
y0 = 1.199 ft



WELL TEST ANALYSIS

Data Set: \...\MW-512S rising.aqt
Date: 10/13/05 Time: 15:52:59

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-512S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.7 ft
Anisotropy Ratio (Kz/Kr): 1.

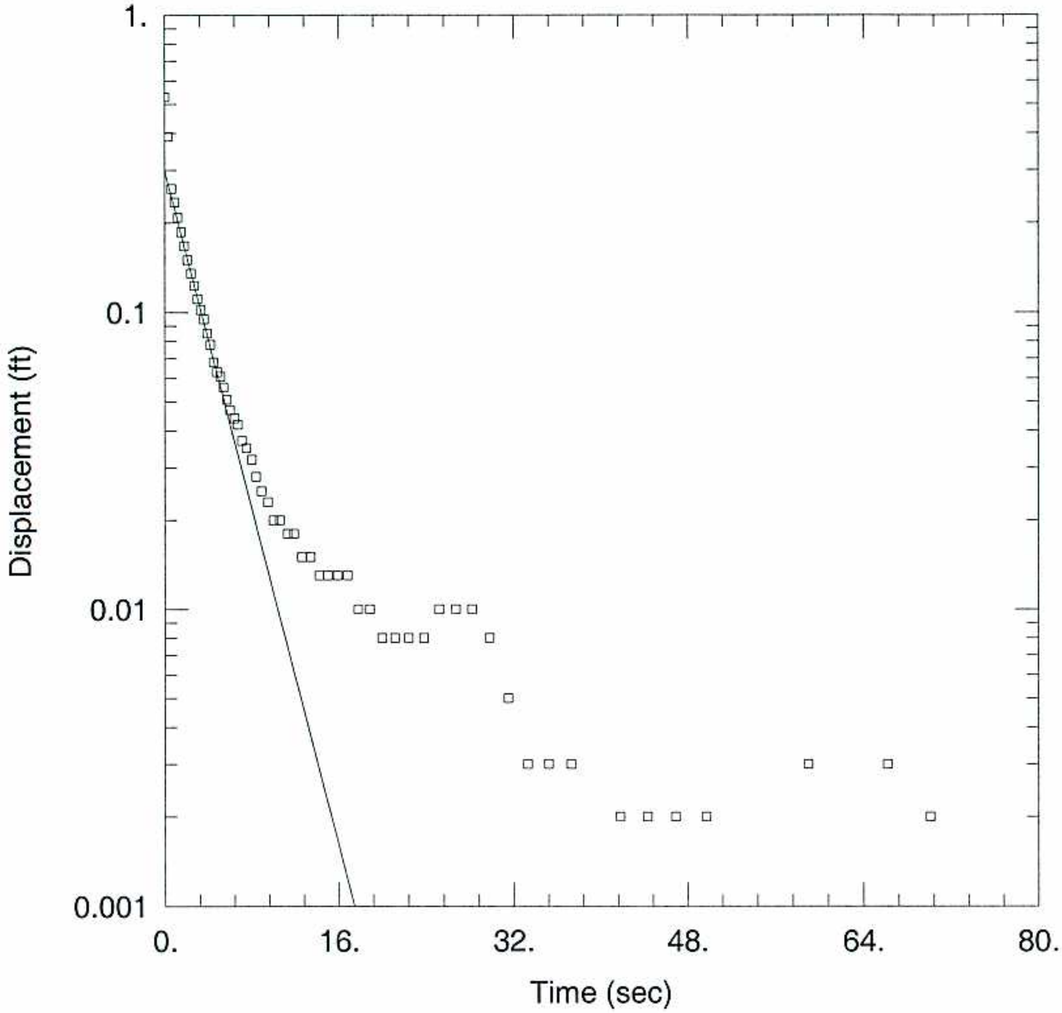
WELL DATA (MW-512S)

Initial Displacement: 0.299 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 5.2 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01104 cm/sec
y0 = 0.2861 ft



WELL TEST ANALYSIS

Data Set: \...\MW-512S rising2.aqt
Date: 10/13/05 Time: 15:52:52

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-512S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.7 ft Anisotropy Ratio (Kz/Kr): 1.

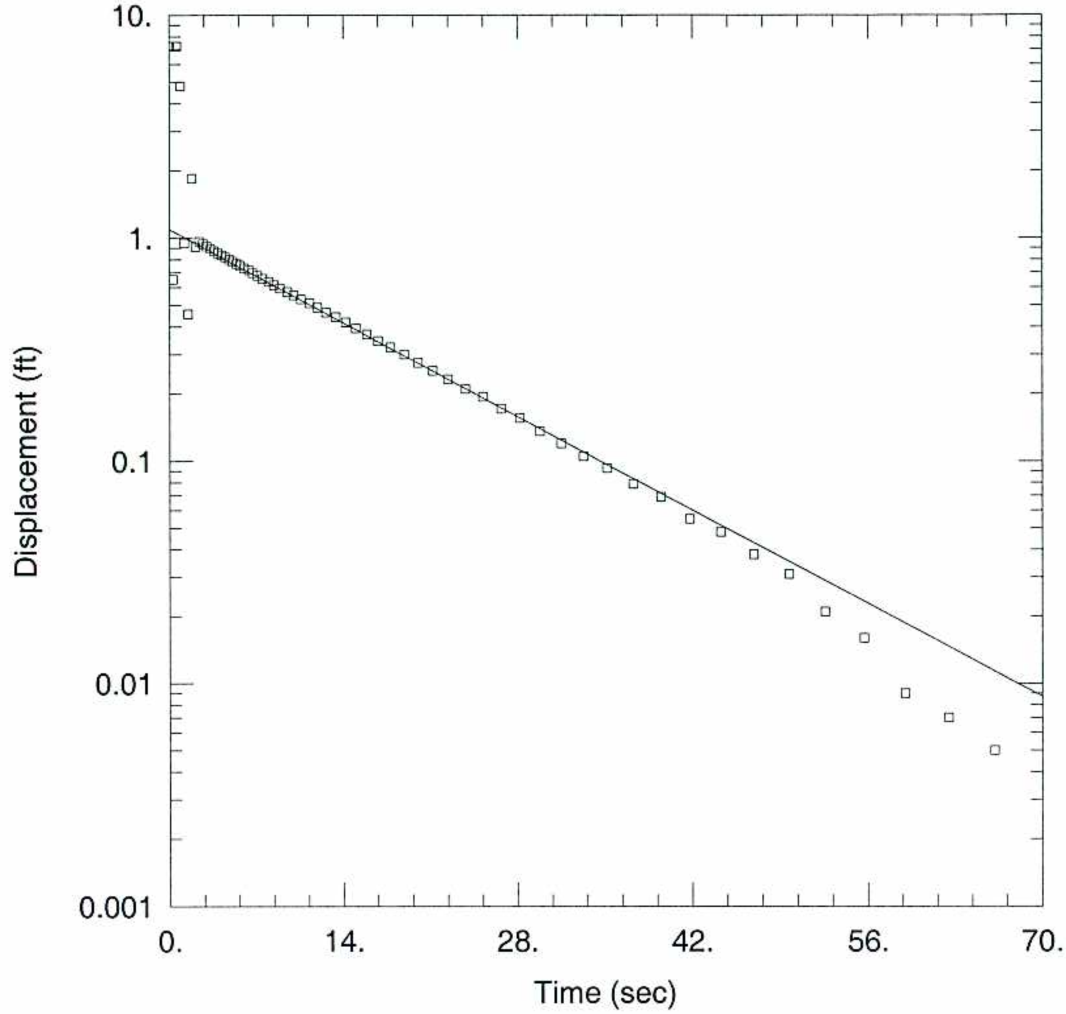
WELL DATA (MW-512S)

Initial Displacement: 0.53 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 5.2 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01203 cm/sec y0 = 0.2988 ft



WELL TEST ANALYSIS

Data Set: \...\MW-512D rising.aqt

Date: 10/13/05 | Time: 15:52:46

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-512D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.7 ft | Anisotropy Ratio (Kz/Kr): 1.

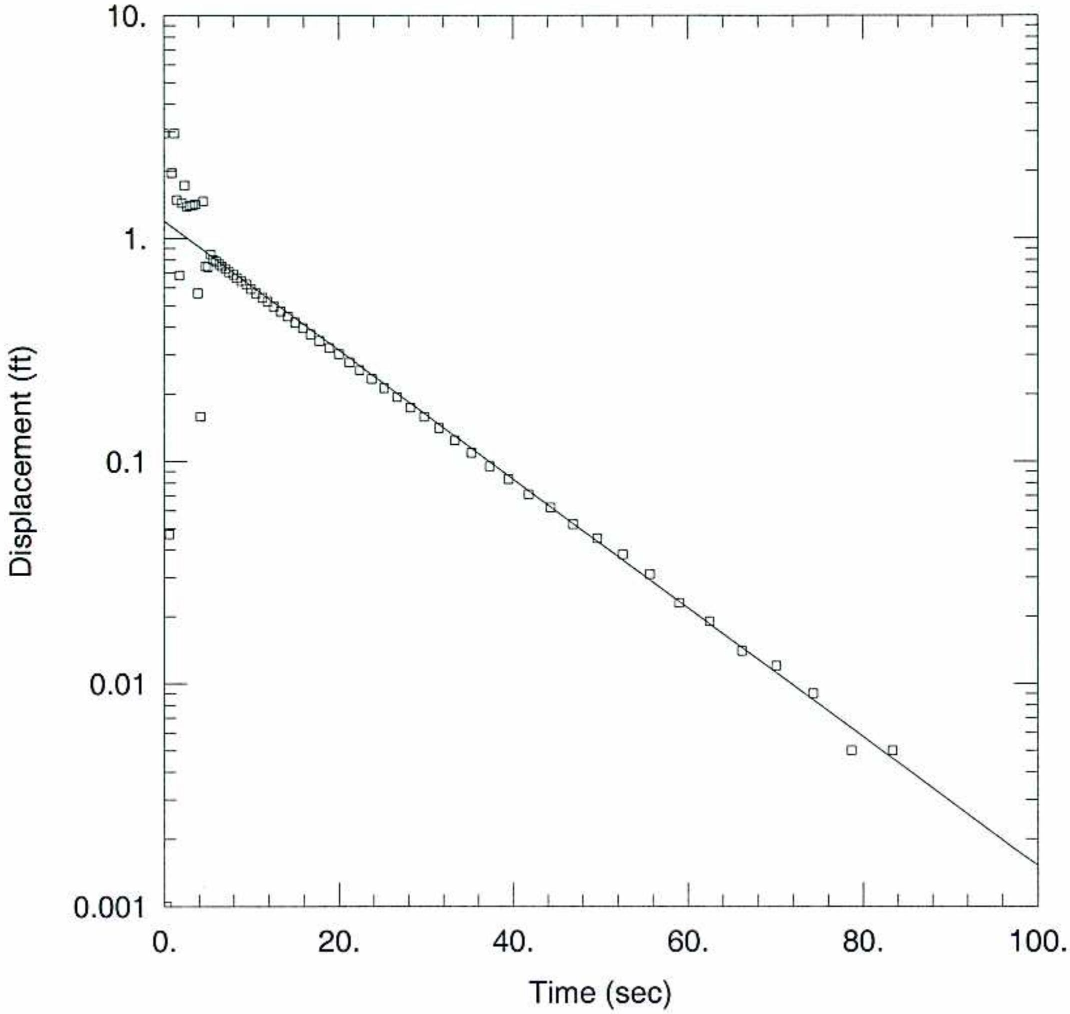
WELL DATA (MW-512D)

Initial Displacement: 7.243 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 22.7 ft

SOLUTION

Aquifer Model: Unconfined | Solution Method: Bouwer-Rice

K = 0.004329 cm/sec | y0 = 1.092 ft



WELL TEST ANALYSIS

Data Set: \...\MW-512D Falling.aqt
Date: 10/13/05 Time: 15:52:40

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-512D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.7 ft Anisotropy Ratio (Kz/Kr): 1.

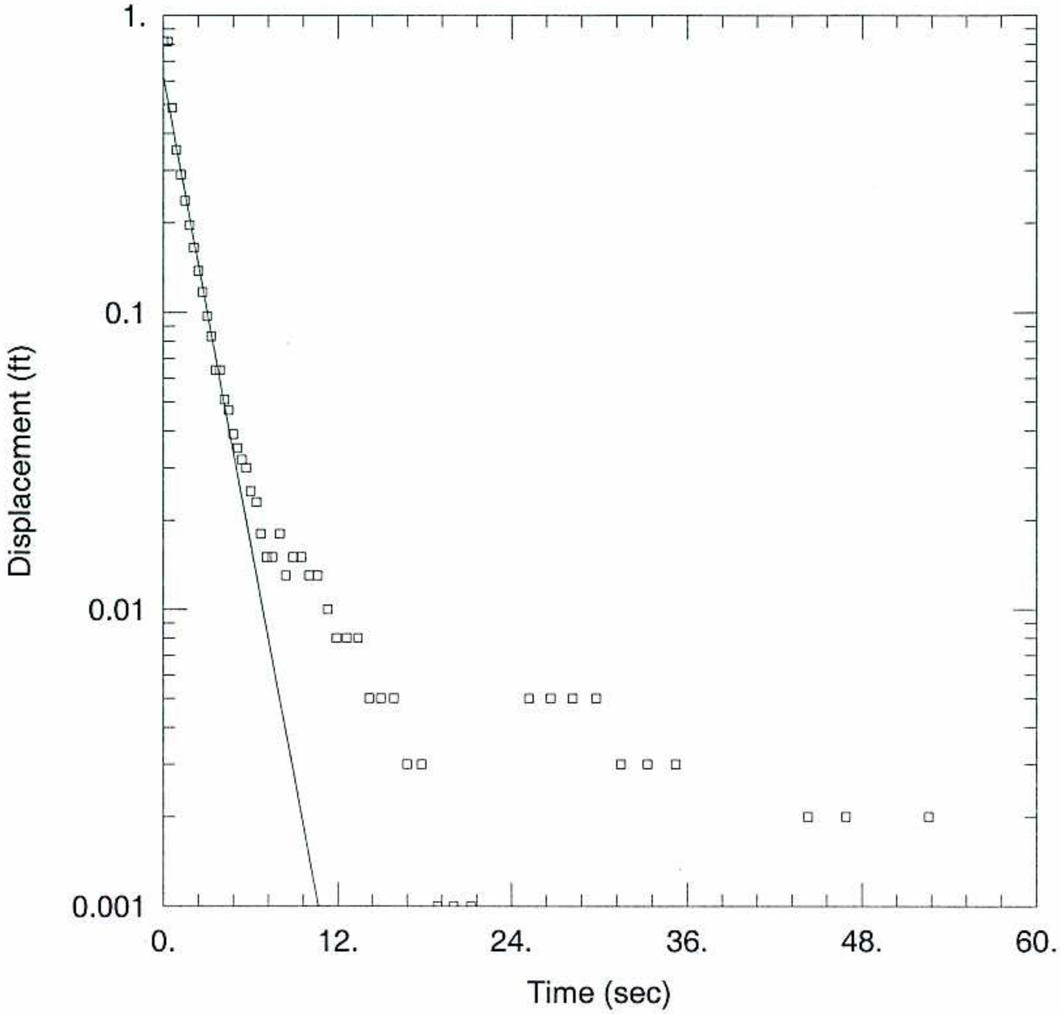
WELL DATA (MW-512D)

Initial Displacement: 2.956 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 22.7 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004182 cm/sec y0 = 1.194 ft



WELL TEST ANALYSIS

Data Set: \...\MW-513S rising.aqt
Date: 10/13/05 Time: 15:53:53

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-513S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft
Anisotropy Ratio (Kz/Kr): 1.

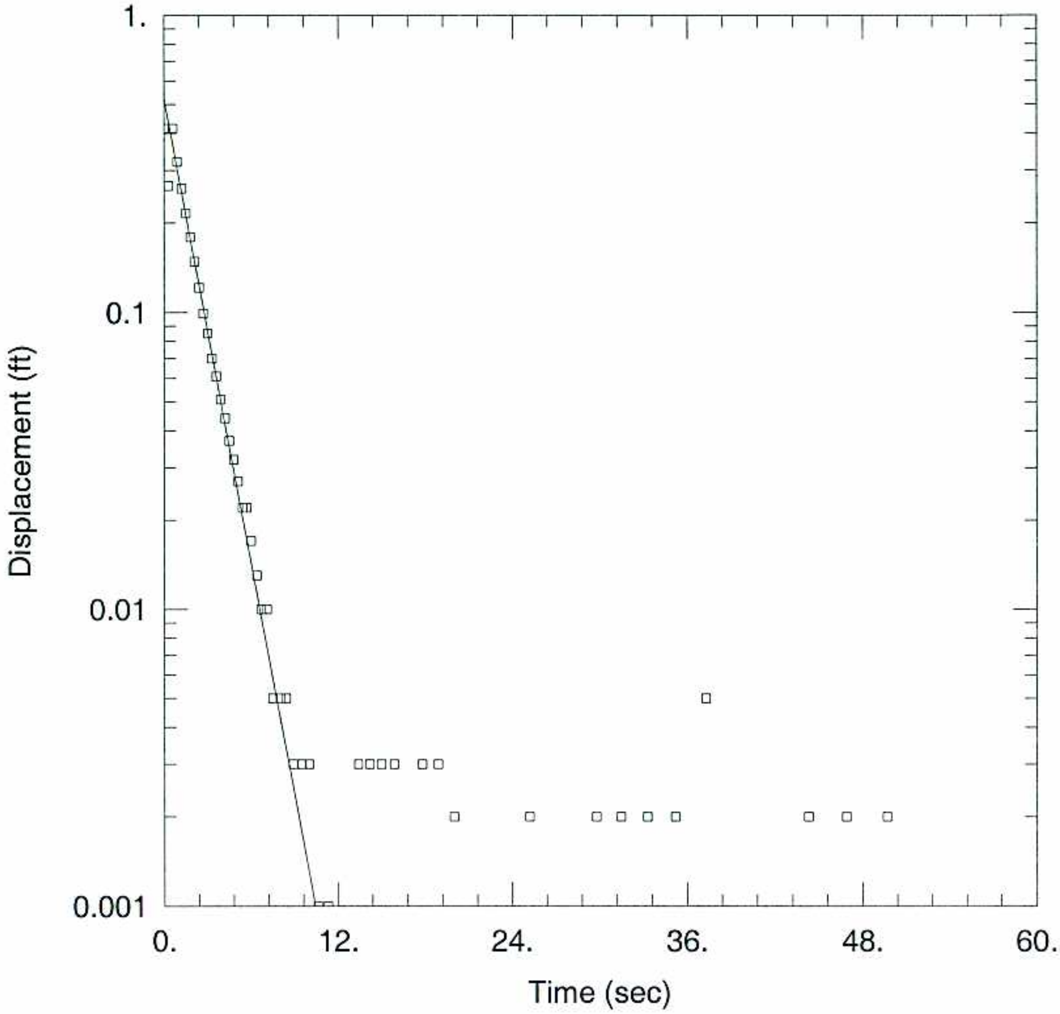
WELL DATA (MW-513S)

Initial Displacement: 0.815 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 4.5 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.09623 cm/sec
y0 = 0.6207 ft



WELL TEST ANALYSIS

Data Set: \...\MW-513S rising2.aqt
Date: 10/13/05 Time: 15:53:46

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-513S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft Anisotropy Ratio (Kz/Kr): 1.

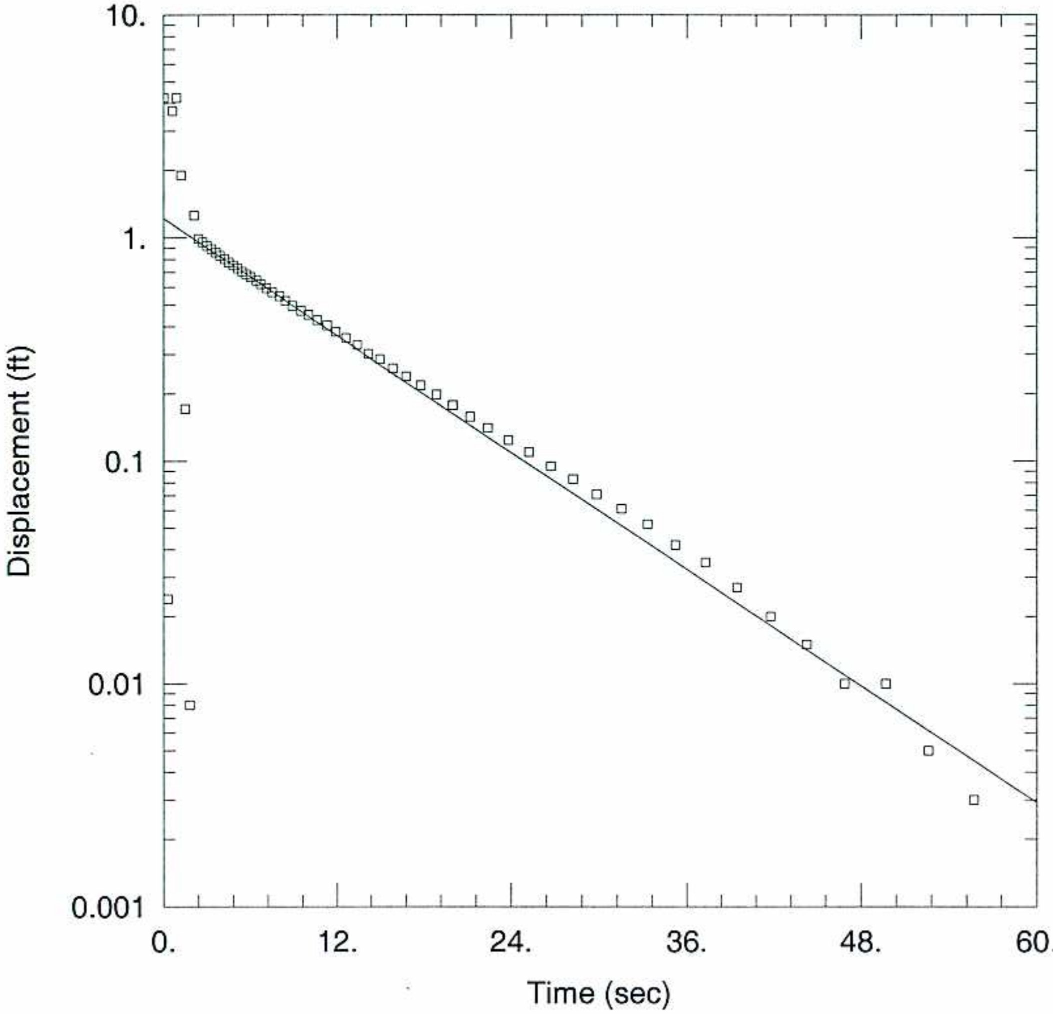
WELL DATA (MW-513S)

Initial Displacement: 0.415 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 4.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.09554 cm/sec y0 = 0.5222 ft



WELL TEST ANALYSIS

Data Set: \...\MW-513D rising.aqt
Date: 10/13/05 Time: 15:53:38

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-513D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft
Anisotropy Ratio (Kz/Kr): 1.

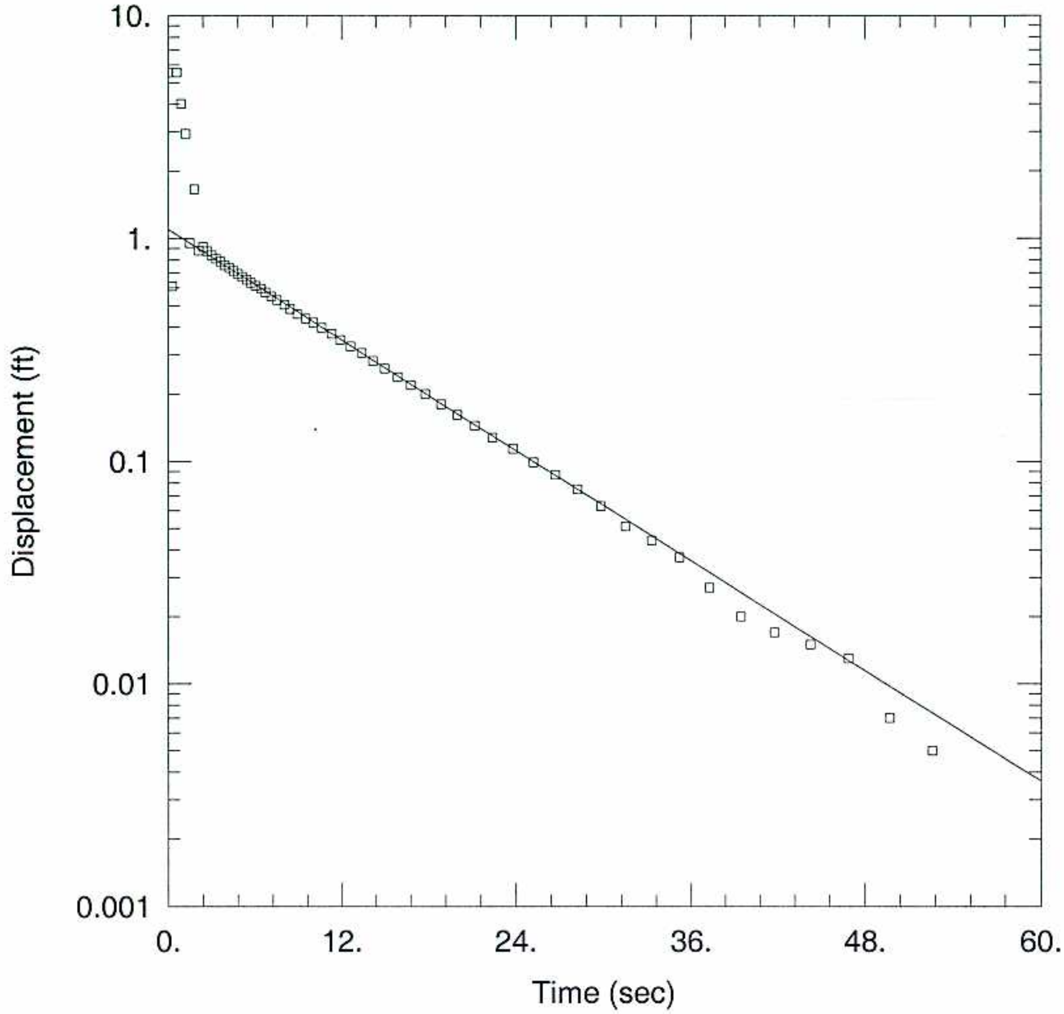
WELL DATA (MW-513D)

Initial Displacement: 4.245 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 22. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006275 cm/sec
y0 = 1.219 ft



WELL TEST ANALYSIS

Data Set: \...\MW-513D rising2.aqt
Date: 10/13/05 Time: 15:53:23

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-513D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft
Anisotropy Ratio (Kz/Kr): 1.

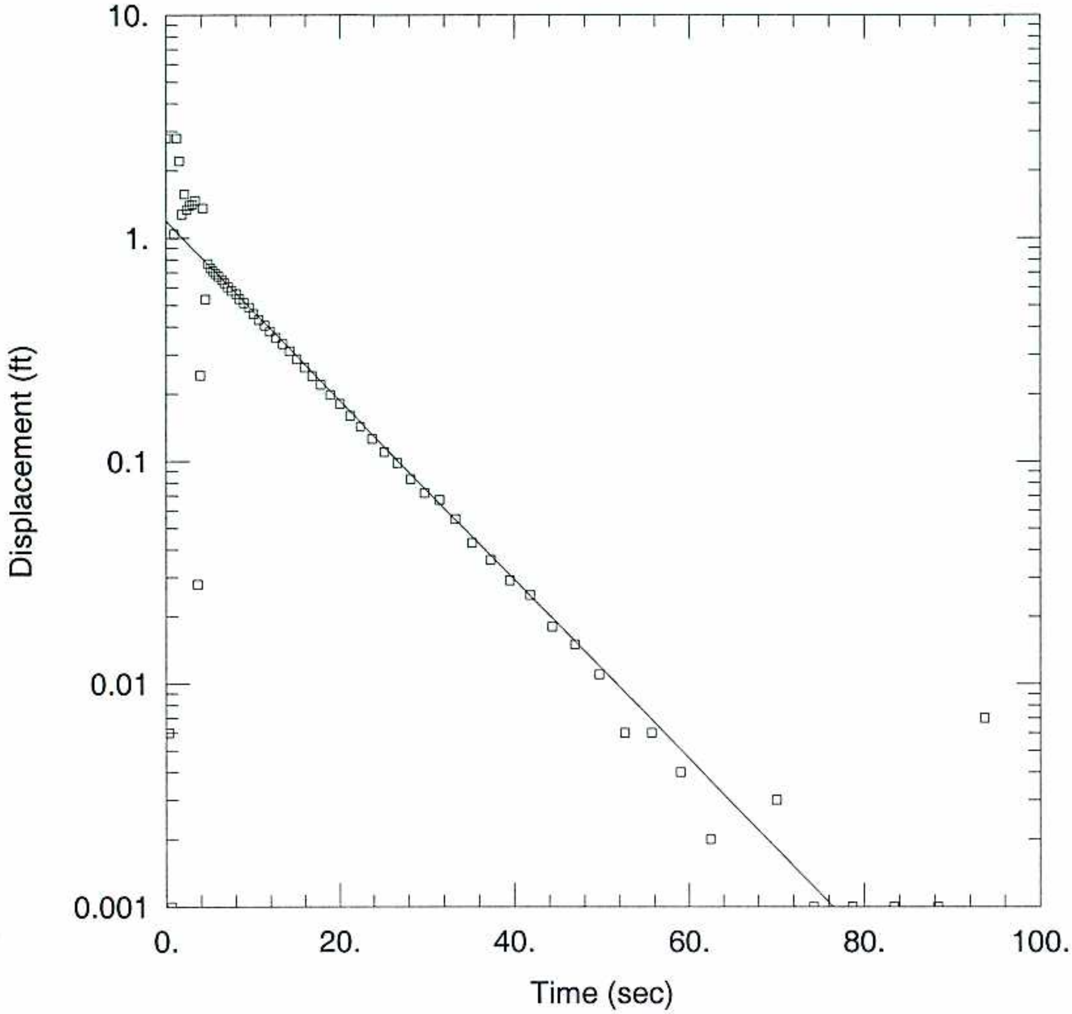
WELL DATA (MW-513D)

Initial Displacement: 5.549 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 22. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.005932 cm/sec
y0 = 1.097 ft



WELL TEST ANALYSIS

Data Set: \...\MW-513D Falling.aqt
Date: 10/13/05 Time: 15:53:14

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-513D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-513D)

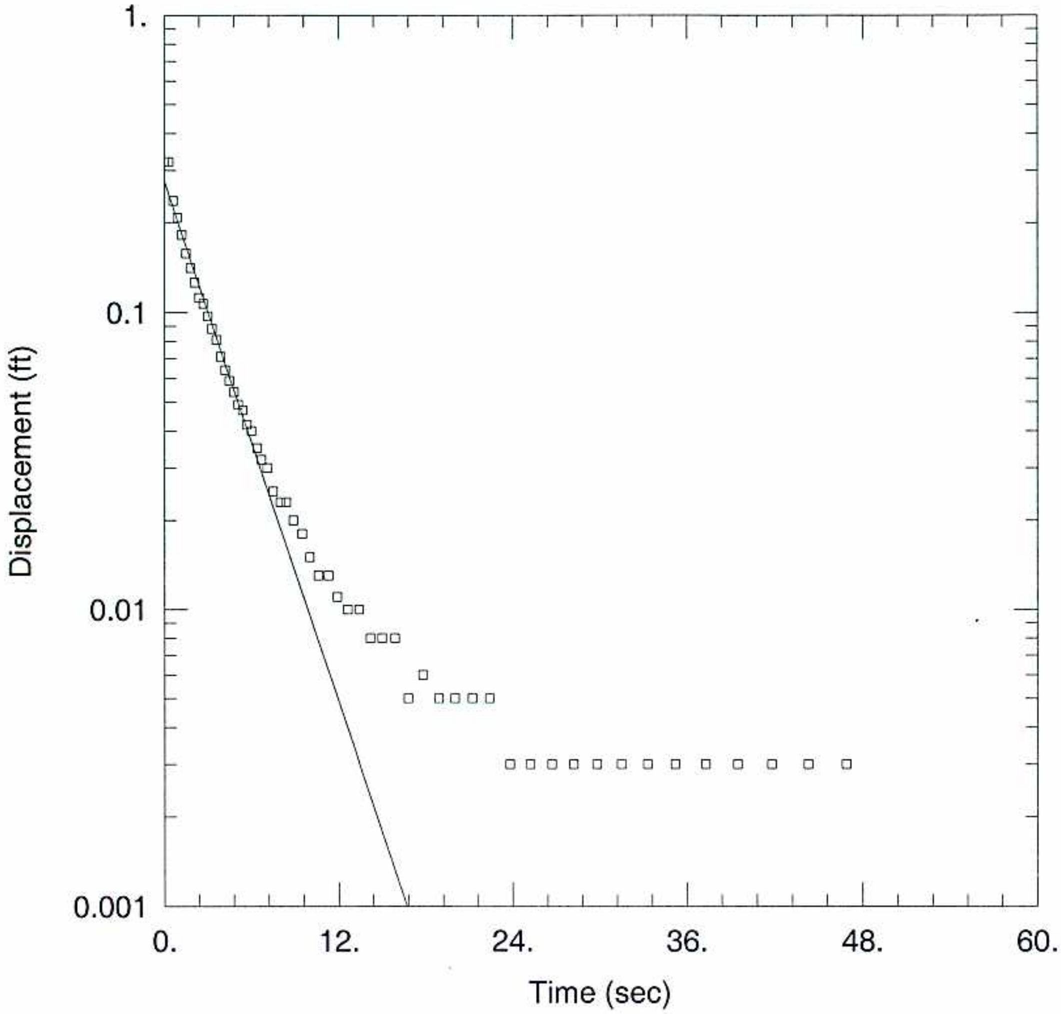
Initial Displacement: 2.794 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25

Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 22. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005771 cm/sec y0 = 1.186 ft



WELL TEST ANALYSIS

Data Set: \...\MW-514S rising.aqt
Date: 10/13/05 Time: 15:54:31

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-514S
Test Date: 05-09-2005

AQUIFER DATA

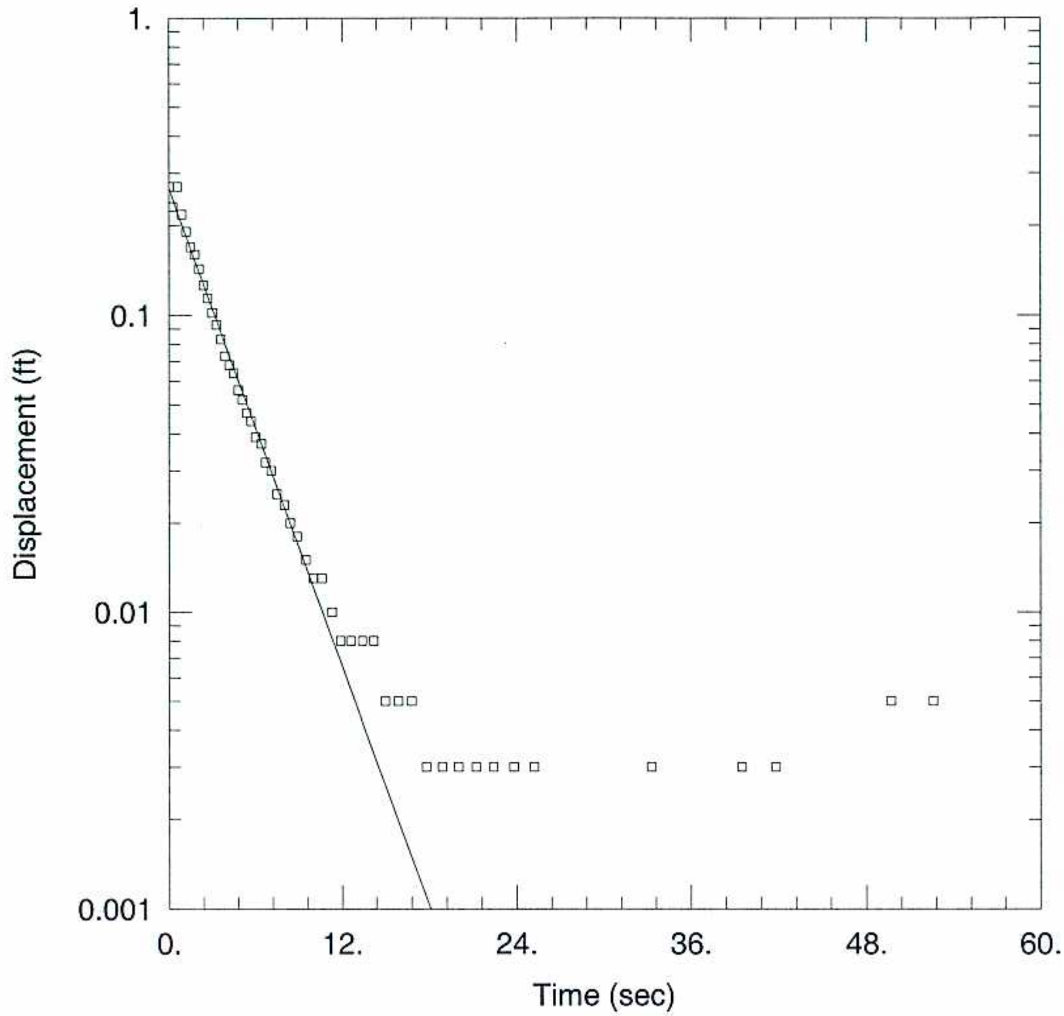
Saturated Thickness: 22.3 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-514S)

Initial Displacement: 0.321 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 4.8 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.05441 cm/sec
y0 = 0.2754 ft



WELL TEST ANALYSIS

Data Set: \...\MW-514S rising2.aqt
Date: 10/13/05 Time: 15:54:16

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-514S
Test Date: 05-09-2005

AQUIFER DATA

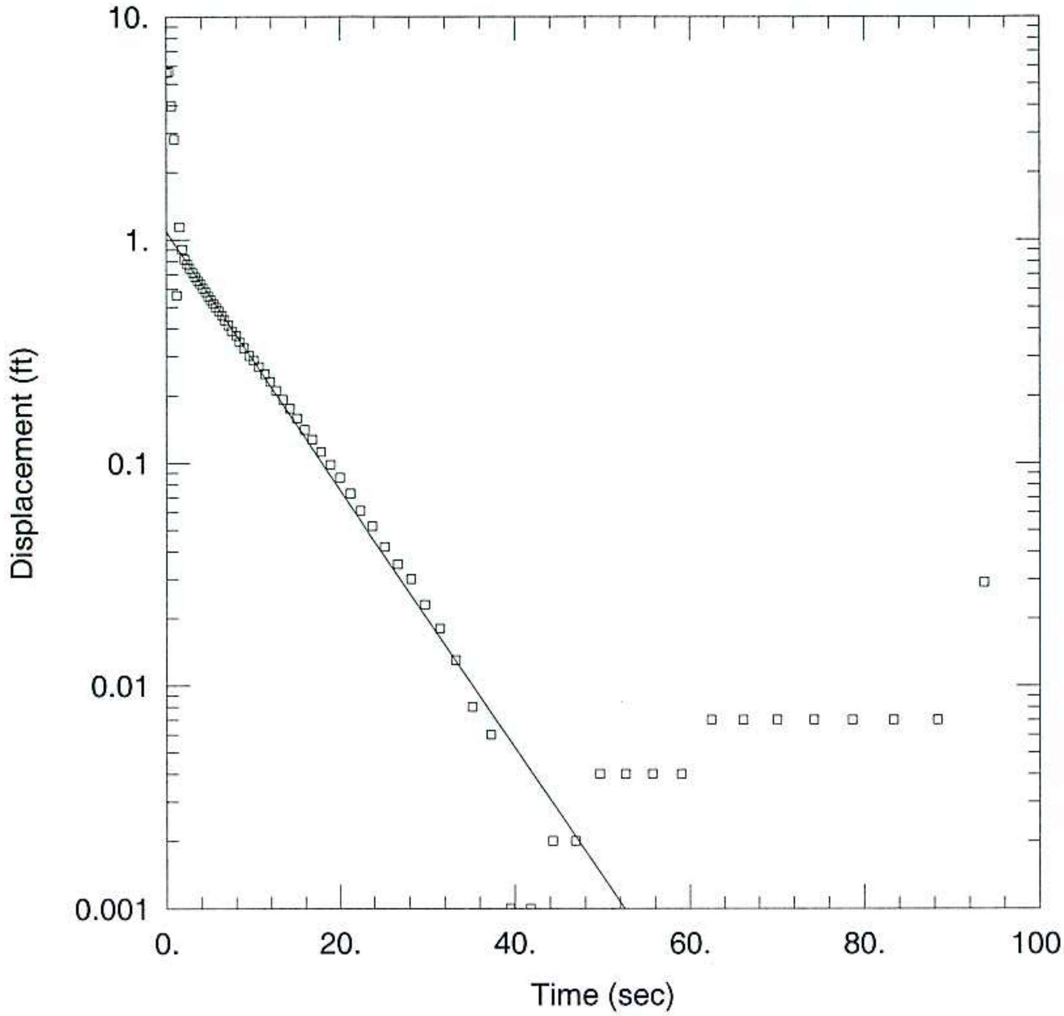
Saturated Thickness: 22.3 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-514S)

Initial Displacement: 0.27 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 4.8 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01114 cm/sec
y0 = 0.2669 ft



WELL TEST ANALYSIS

Data Set: \...\MW-514D rising.aqt
Date: 10/13/05 Time: 15:54:08

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-514D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.3 ft
Anisotropy Ratio (Kz/Kr): 1.

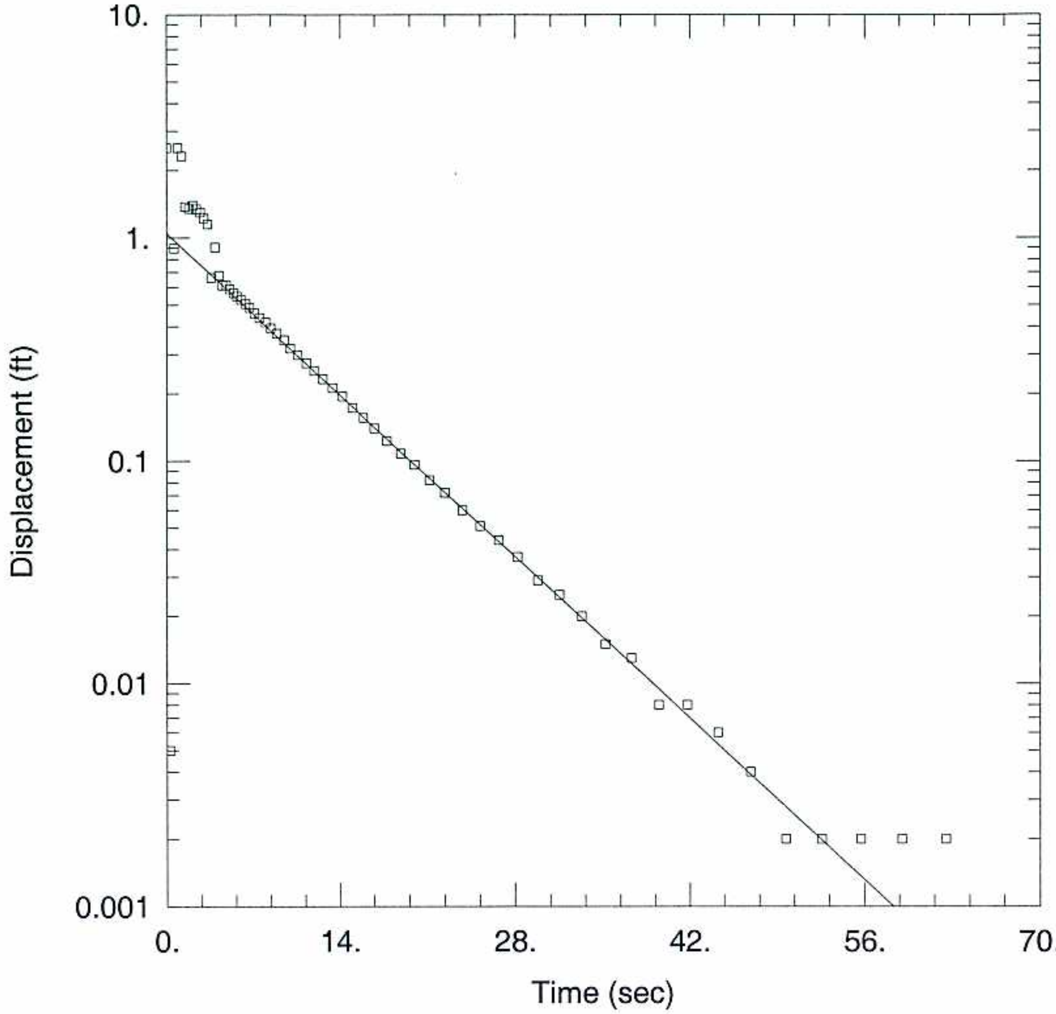
WELL DATA (MW-514D)

Initial Displacement: 5.617 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 22.3 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.008327 cm/sec
y0 = 1.084 ft



WELL TEST ANALYSIS

Data Set: \...\MW-514D Falling.aqt
Date: 10/13/05
Time: 15:54:00

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-514D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22.3 ft
Anisotropy Ratio (Kz/Kr): 1.

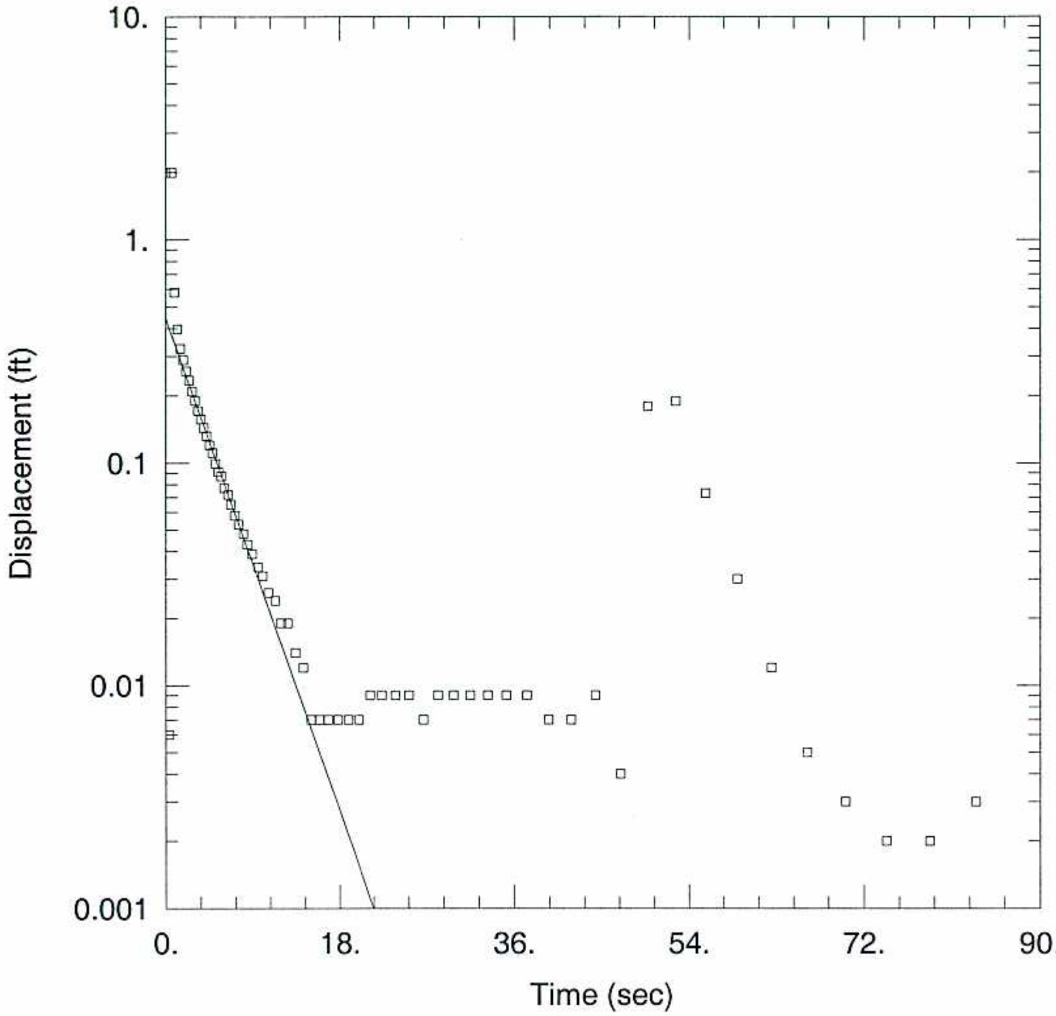
WELL DATA (MW-514D)

Initial Displacement: 2.526 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 22.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.007455 cm/sec
y0 = 1.044 ft



WELL TEST ANALYSIS

Data Set: \...\MW-515S rising.aqt
Date: 10/13/05 | Time: 15:55:04

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-515S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 24.3 ft
Anisotropy Ratio (Kz/Kr): 1.

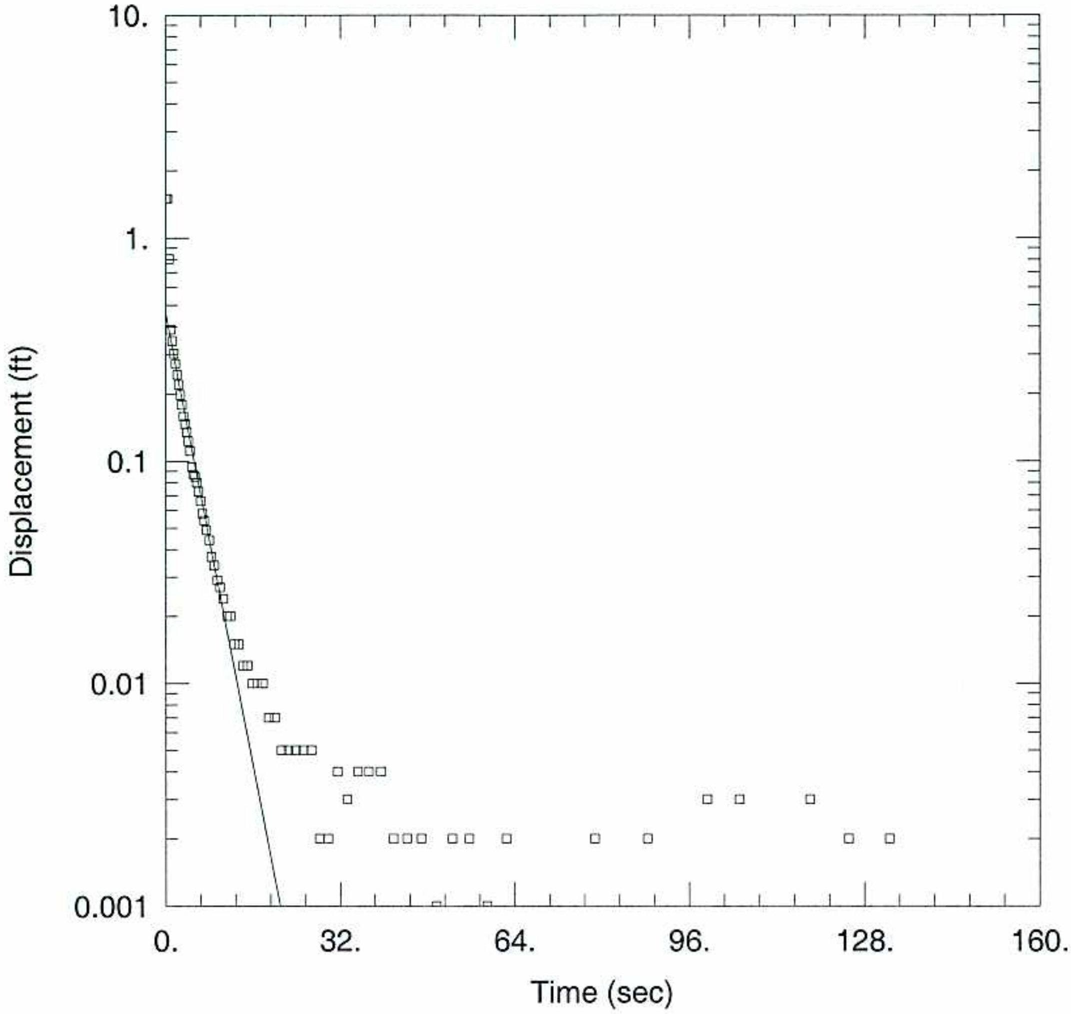
WELL DATA (MW-515S)

Initial Displacement: 1.996 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 6.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01084 cm/sec
y0 = 0.4431 ft



WELL TEST ANALYSIS

Data Set: \...\MW-515S rising2.aqt
Date: 10/13/05 Time: 15:54:55

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-515S
Test Date: 05-09-2005

AQUIFER DATA

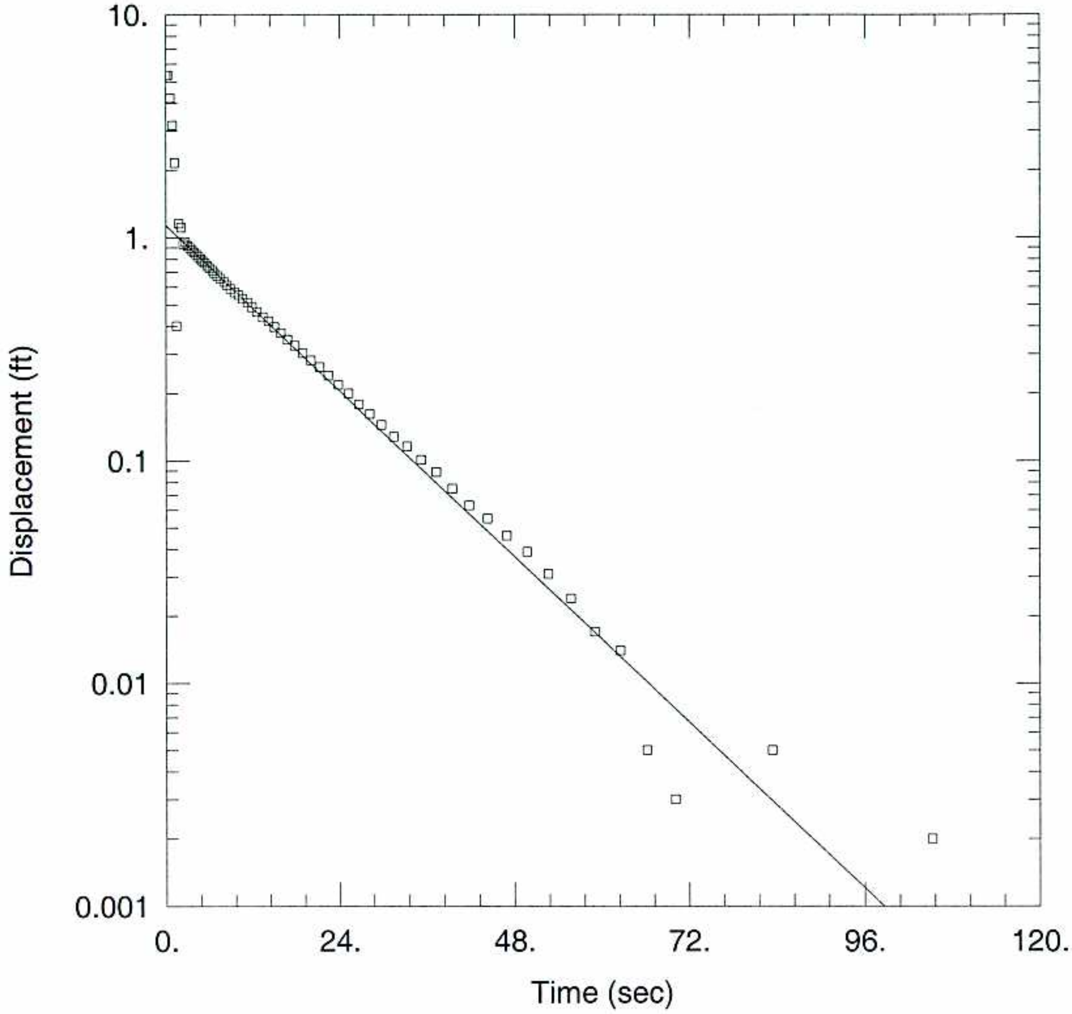
Saturated Thickness: 24.3 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-515S)

Initial Displacement: 1.497 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 6.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01121 cm/sec
y0 = 0.4584 ft



WELL TEST ANALYSIS

Data Set: \...\MW-515D rising.aqt
Date: 10/13/05
Time: 15:54:44

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-515D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 24.3 ft
Anisotropy Ratio (Kz/Kr): 1.

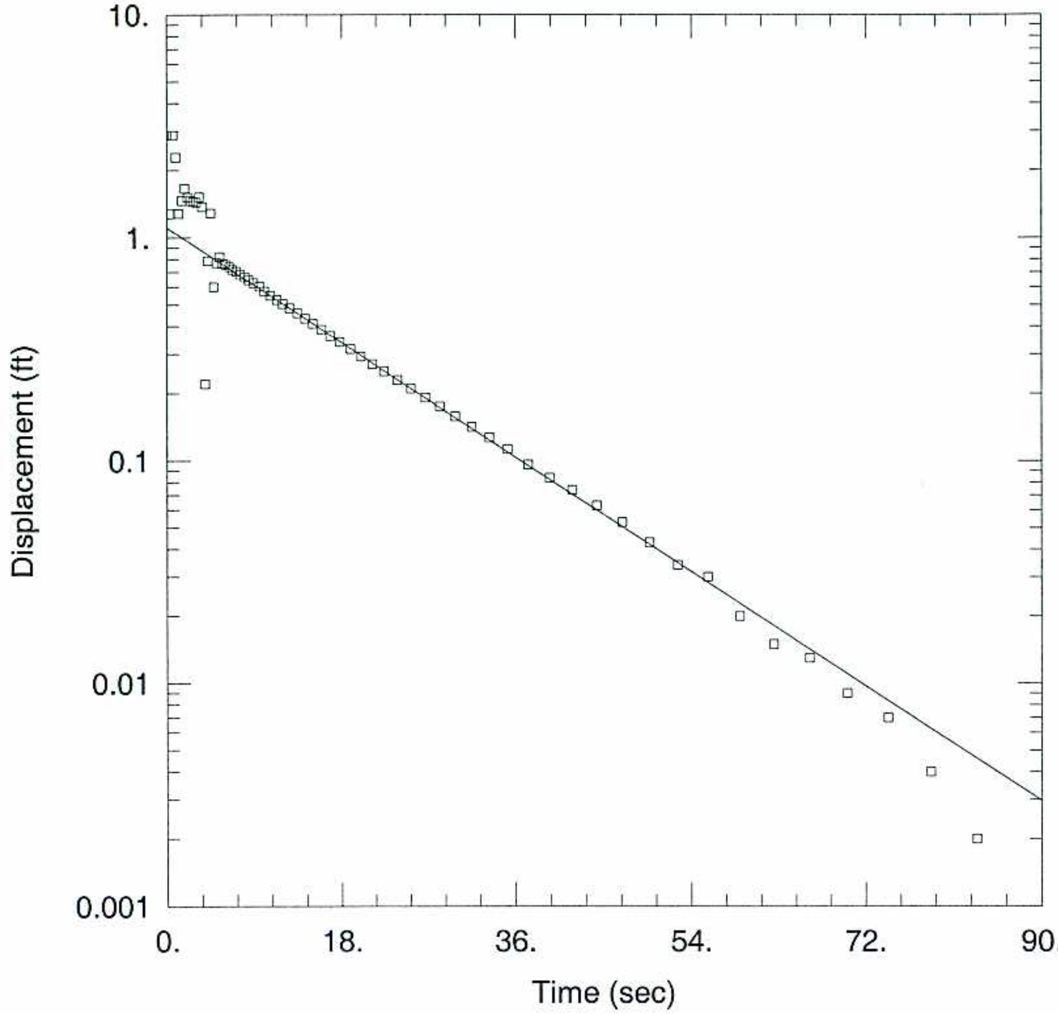
WELL DATA (MW-515D)

Initial Displacement: 5.356 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 24.3 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004525 cm/sec
y0 = 1.133 ft



WELL TEST ANALYSIS

Data Set: \...\MW-515D Falling.aqt
Date: 10/13/05 Time: 15:54:38

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-515D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 24.3 ft Anisotropy Ratio (Kz/Kr): 1.

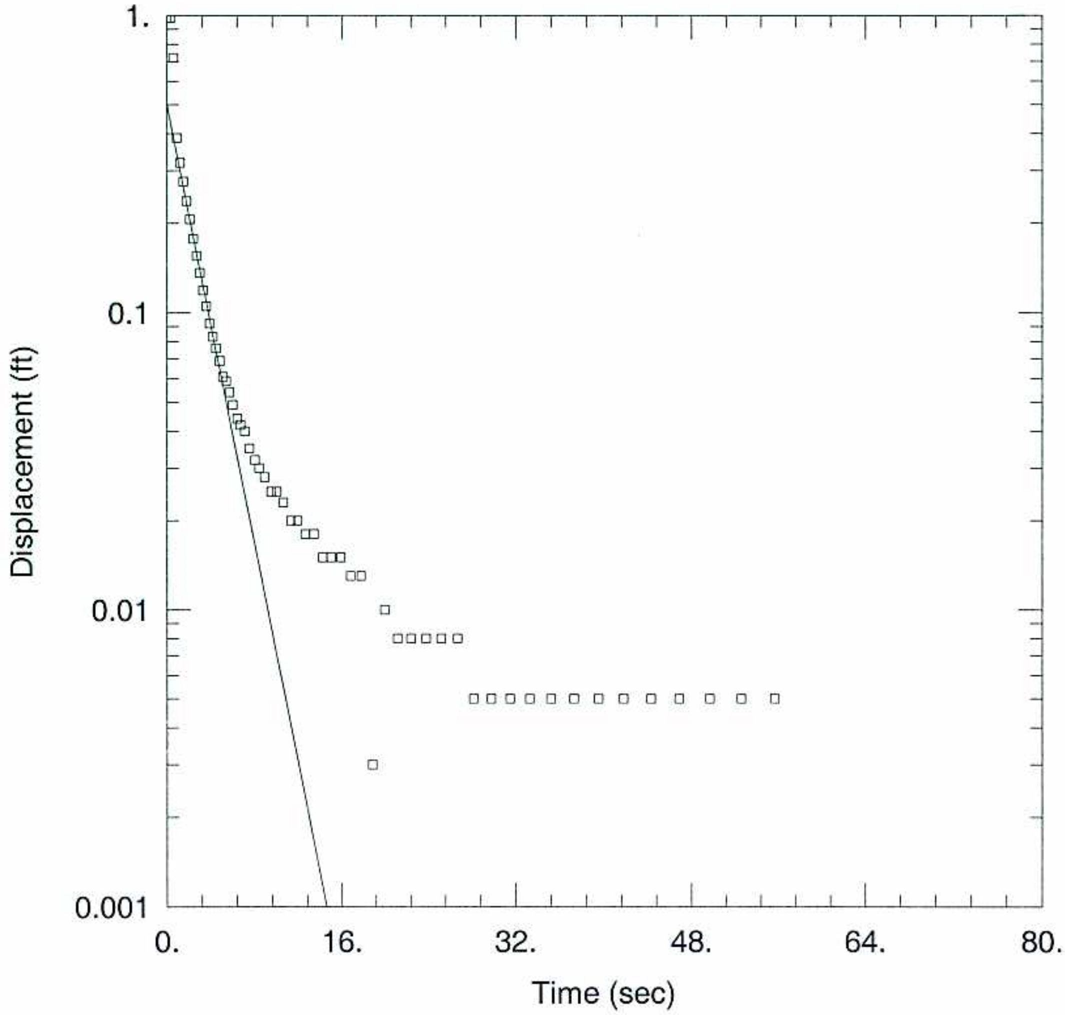
WELL DATA (MW-515D)

Initial Displacement: 2.871 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 24.3 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004172 cm/sec y0 = 1.106 ft



WELL TEST ANALYSIS

Data Set: \...\MW-516S rising.aqt
Date: 10/13/05 Time: 15:55:43

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-516S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft
Anisotropy Ratio (Kz/Kr): 1.

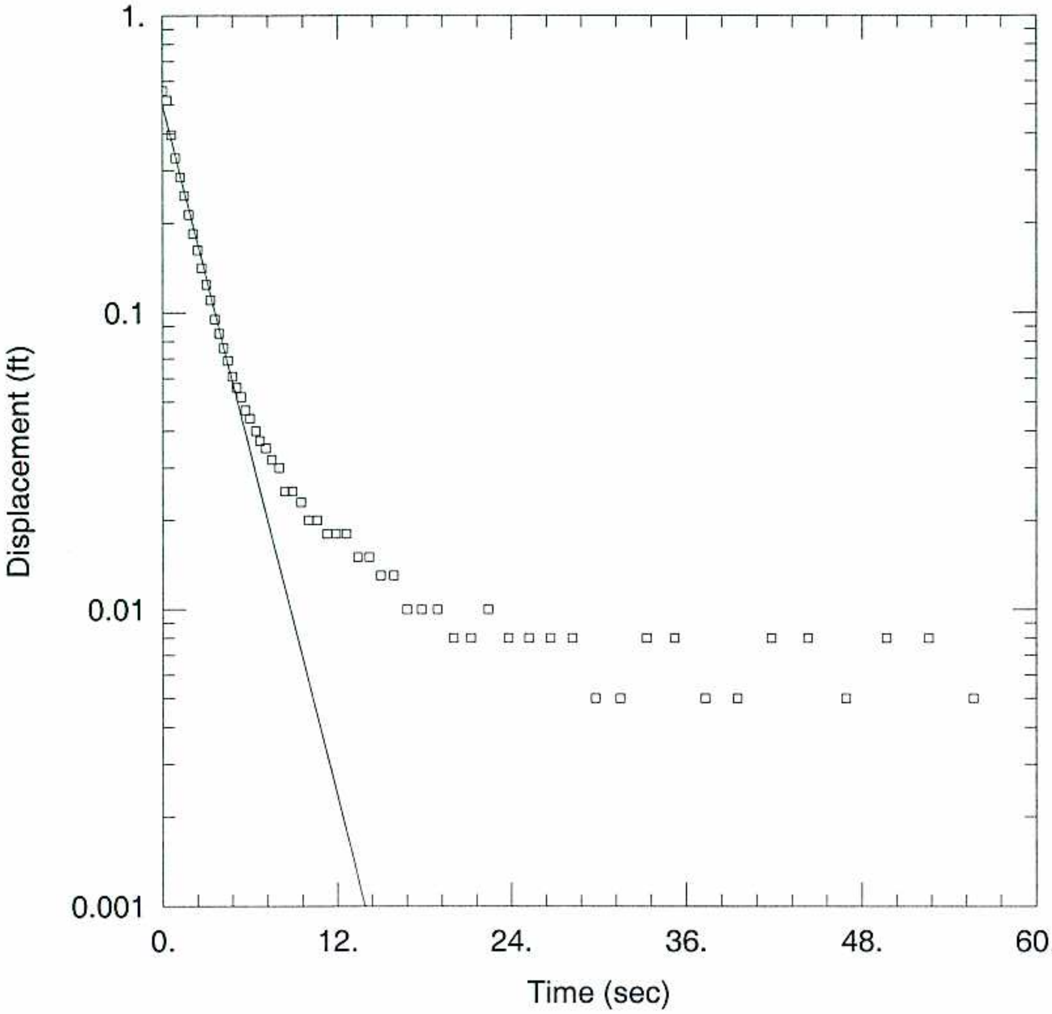
WELL DATA (MW-516S)

Initial Displacement: 0.982 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 4.9 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.06944 cm/sec
y0 = 0.5012 ft



WELL TEST ANALYSIS

Data Set: \...\MW-516S rising2.aqt
Date: 10/13/05 Time: 15:55:33

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-516S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 22. ft
Anisotropy Ratio (Kz/Kr): 1.

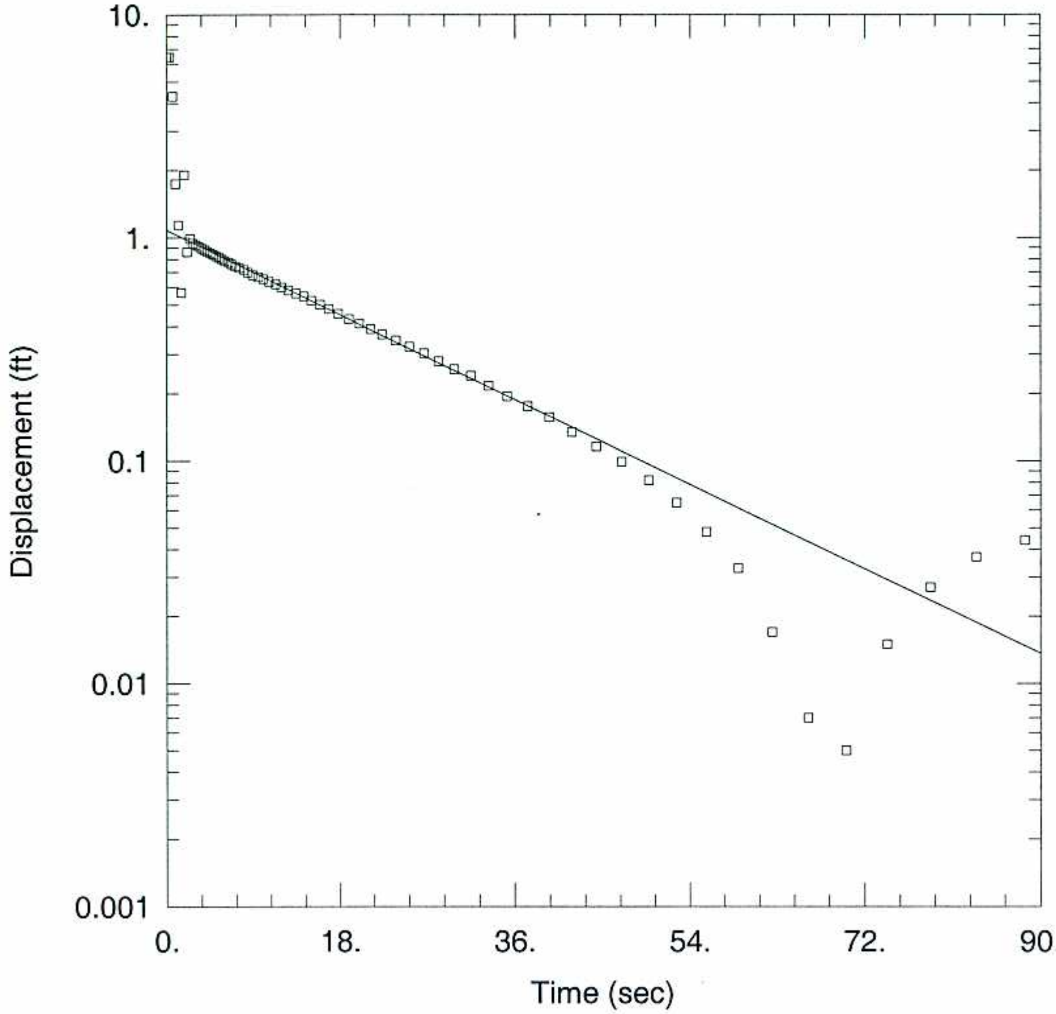
WELL DATA (MW-516S)

Initial Displacement: 0.557 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 4.9 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.07275 cm/sec
y0 = 0.5009 ft



WELL TEST ANALYSIS

Data Set: \...\MW-516D Rising.aqt
Date: 10/13/05 Time: 15:55:26

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-516D
Test Date: 05-09-2005

AQUIFER DATA

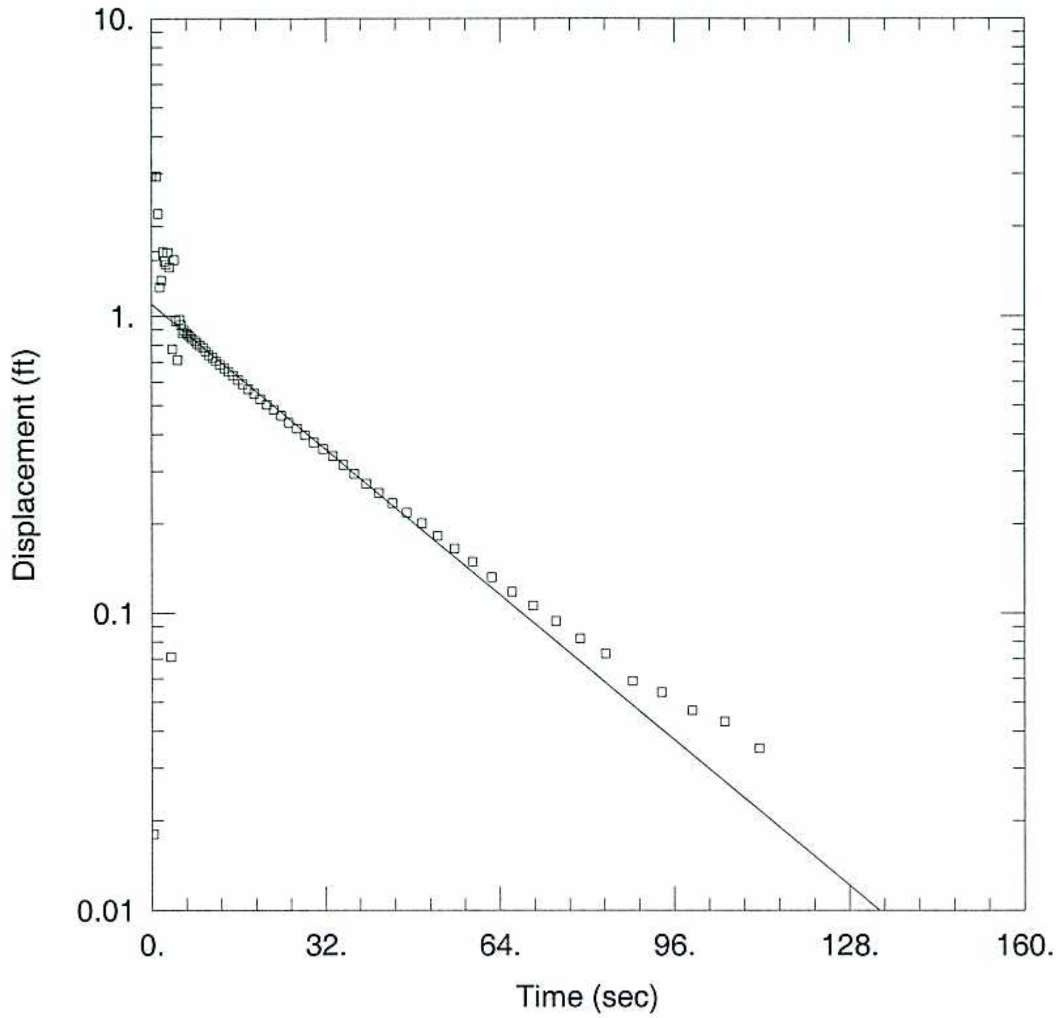
Saturated Thickness: 22. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-516D)

Initial Displacement: 6.441 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 22. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.003029 cm/sec y0 = 1.08 ft



WELL TEST ANALYSIS

Data Set: \...\MW-516D Falling.aqt
Date: 10/13/05 Time: 15:55:13

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-516D
Test Date: 05-09-2005

AQUIFER DATA

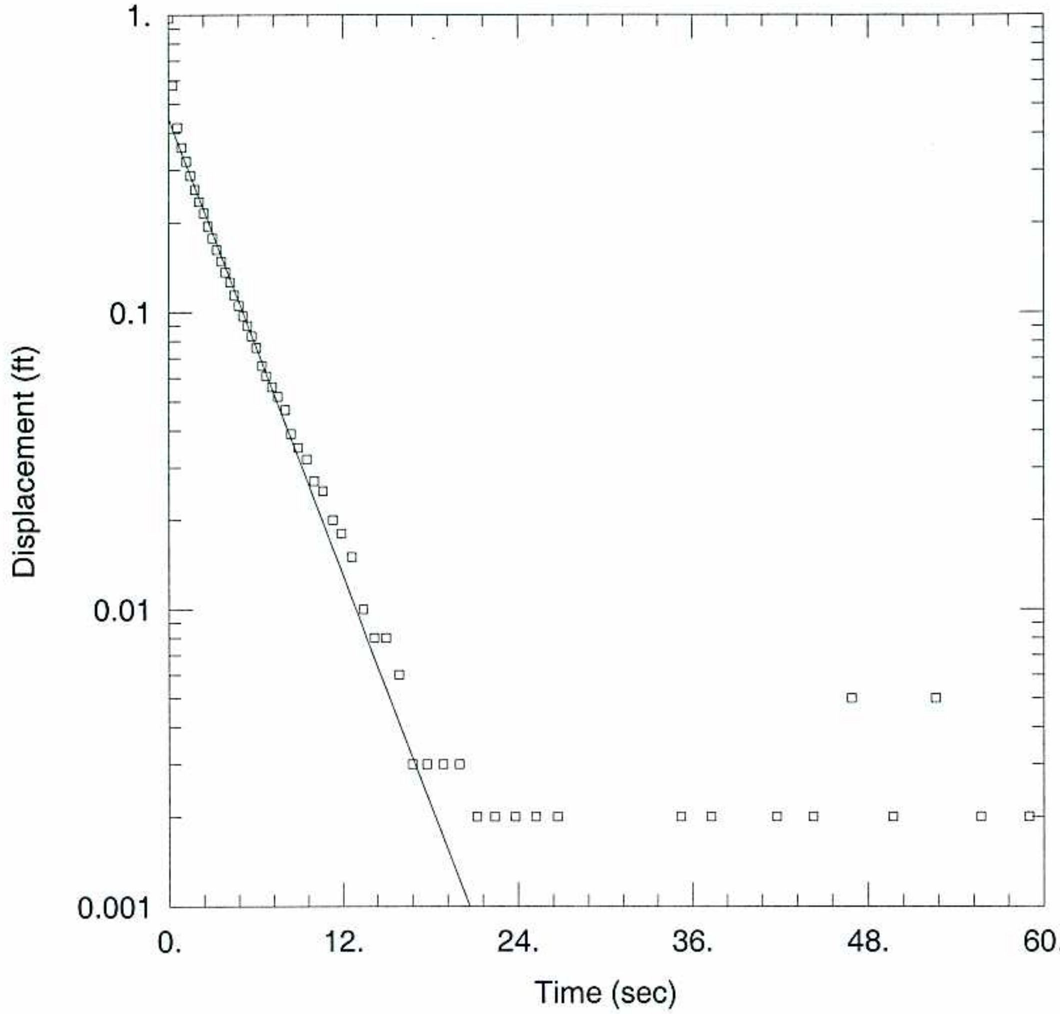
Saturated Thickness: 22. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-516D)

Initial Displacement: 2.941 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 22. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002196 cm/sec
y0 = 1.096 ft



WELL TEST ANALYSIS

Data Set: \...\MW-517S rising.aqt
Date: 10/13/05 Time: 15:56:31

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-517S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19. ft Anisotropy Ratio (Kz/Kr): 1.

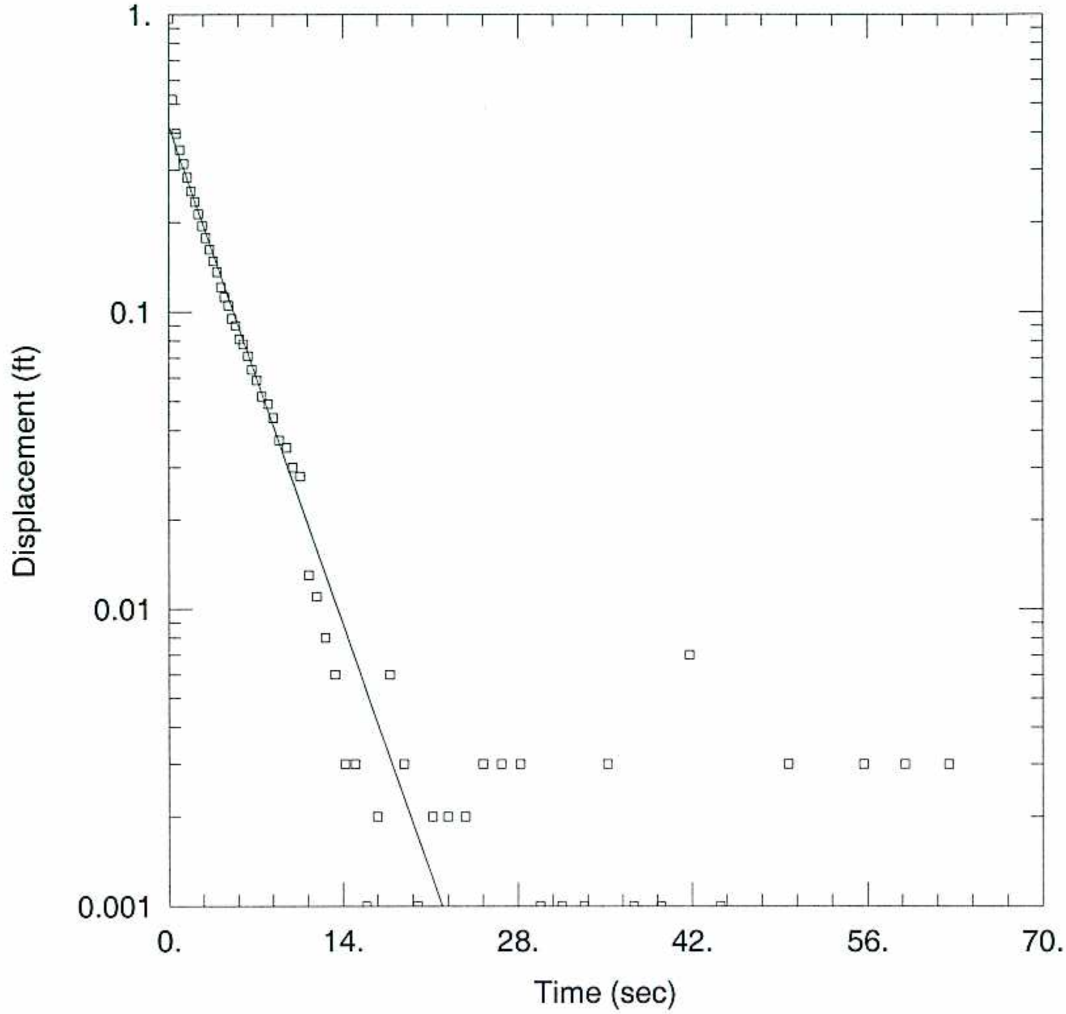
WELL DATA (MW-517S)

Initial Displacement: 0.974 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 6.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01154 cm/sec $y0$ = 0.4474 ft



WELL TEST ANALYSIS

Data Set: \...\MW-517S rising2.aqt
Date: 10/13/05 Time: 15:56:26

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-517S
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19. ft Anisotropy Ratio (Kz/Kr): 1.

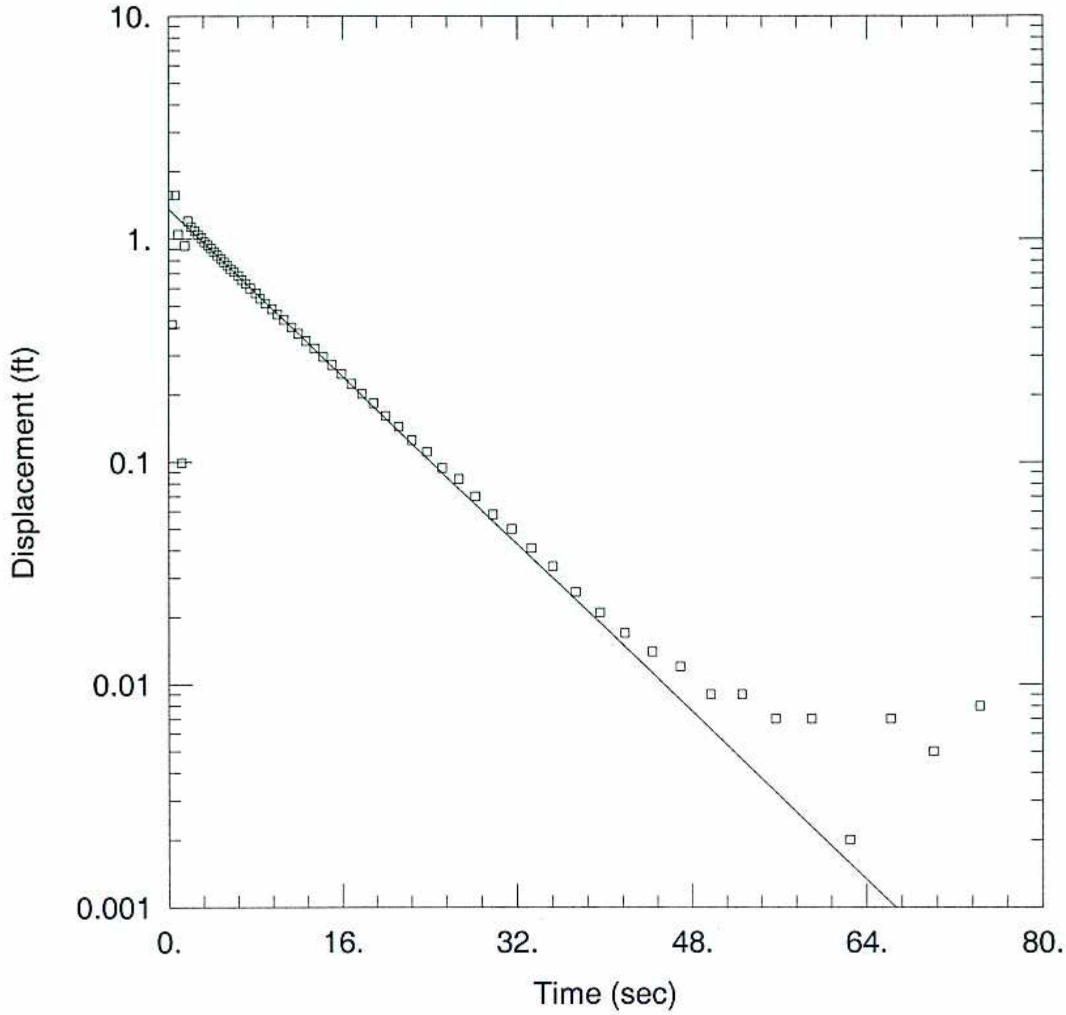
WELL DATA (MW-517S)

Initial Displacement: 0.969 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 6.5 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01077 cm/sec y0 = 0.4196 ft



WELL TEST ANALYSIS

Data Set: \...\MW-517D rising.aqt
Date: 10/13/05
Time: 15:56:21

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-517D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19. ft
Anisotropy Ratio (Kz/Kr): 1.

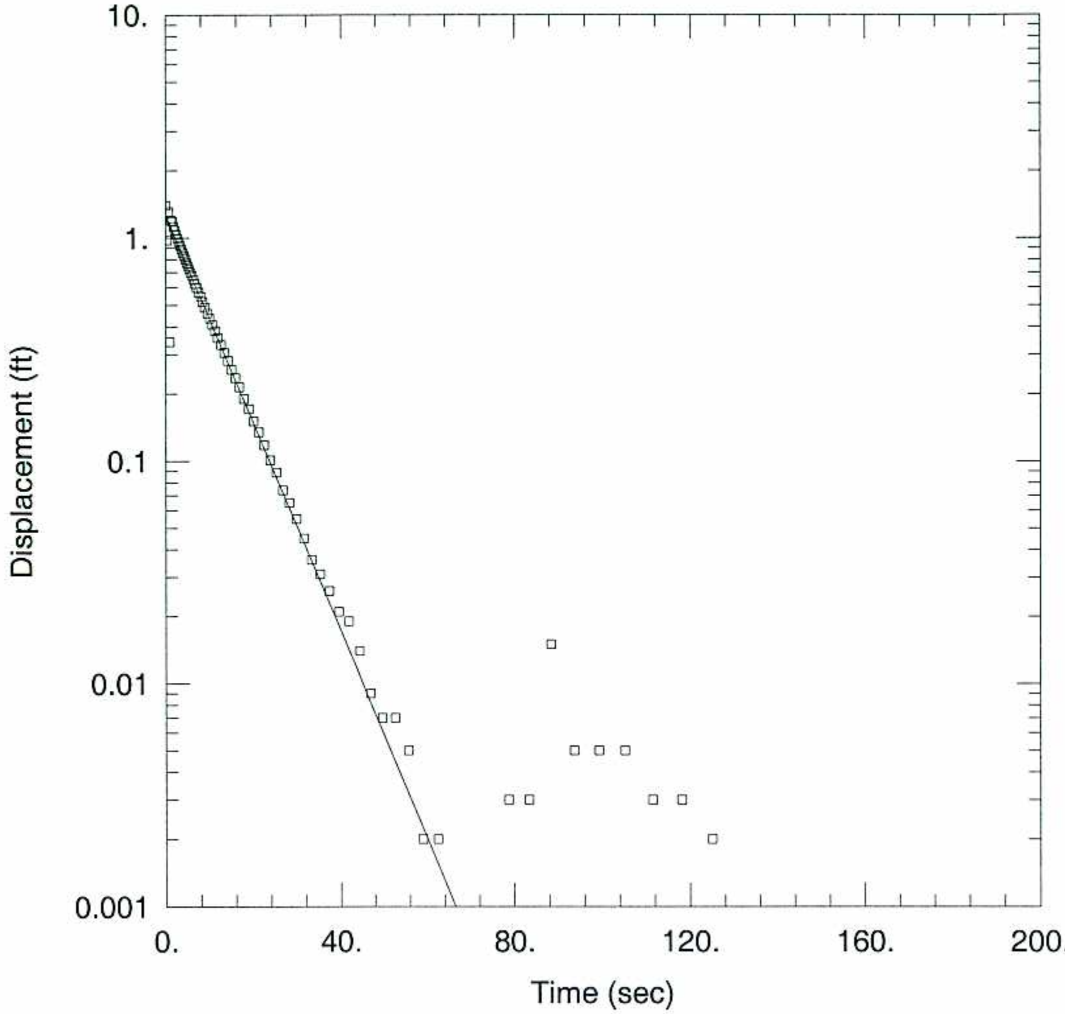
WELL DATA (MW-517D)

Initial Displacement: 1.572 ft
Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 19. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006582 cm/sec
y0 = 1.363 ft



WELL TEST ANALYSIS

Data Set: \...\MW-517D rising2.aqt
Date: 10/13/05 Time: 15:56:08

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-517D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19. ft
Anisotropy Ratio (Kz/Kr): 1.

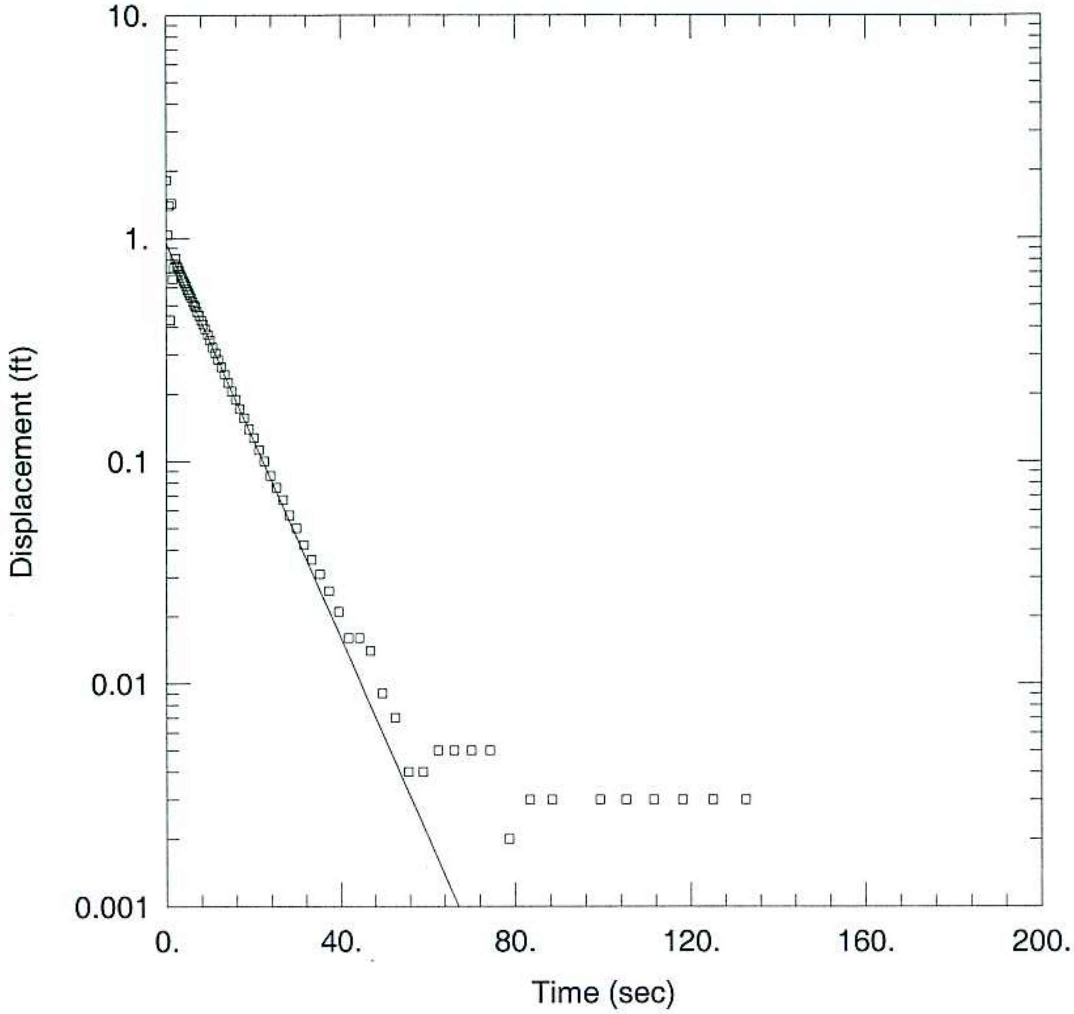
WELL DATA (MW-517D)

Initial Displacement: 1.393 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25
Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 19. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.006529 cm/sec
y0 = 1.264 ft



WELL TEST ANALYSIS

Data Set: \...\MW-517D Falling.aqt
Date: 10/13/05 Time: 15:56:00

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-517D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-517D)

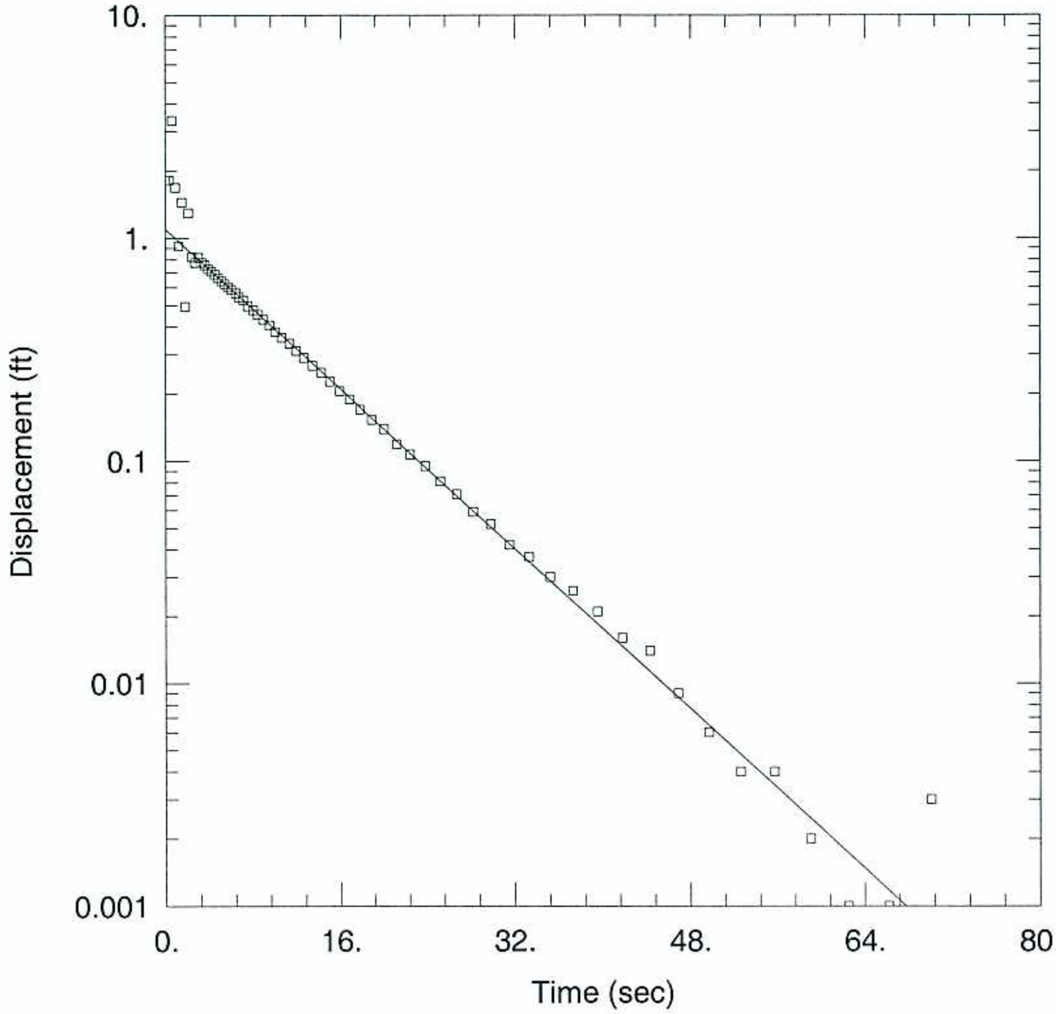
Initial Displacement: 1.811 ft
Wellbore Radius: 0.333 ft
Screen Length: 5. ft
Gravel Pack Porosity: 0.25

Casing Radius: 0.08612 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 19. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.006201 cm/sec y0 = 0.9471 ft



WELL TEST ANALYSIS

Data Set: \...\MW-517D Falling2.aqt
Date: 10/13/05 Time: 15:55:50

PROJECT INFORMATION

Company: CH2M HILL
Client: USEPA
Project: OMC Plant 2 (OU4) - 186305
Test Location: Waukegan, IL
Test Well: MW-517D
Test Date: 05-09-2005

AQUIFER DATA

Saturated Thickness: 19. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-517D)

Initial Displacement: 1.815 ft Casing Radius: 0.08612 ft
Wellbore Radius: 0.333 ft Well Skin Radius: 0.333 ft
Screen Length: 5. ft Total Well Penetration Depth: 19. ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.006279 cm/sec y0 = 1.094 ft

Membrane Interface Probe Investigation OMC Plant 2 (Operable Unit 4), Waukegan, Illinois WA No. 237-RICO-0528, Contract No. 68-W6-0025

PREPARED FOR:	USEPA
PREPARED BY:	CH2M HILL
DATE:	October 13, 2005

Introduction

This memorandum documents the activities associated with the Membrane Interface Probe (MIP) Investigation conducted as part of the remedial investigation at the OMC Plant 2 site in Waukegan, Illinois. MIP activities were performed beneath the existing building, site-wide on the OMC Plant 2 property, and at the Larsen Marine property located south of OMC Plant 2. The MIP investigation commenced on January 11, 2005, and was completed on March 9, 2005.

The objectives of the MIP investigation were to:

- Collect soil conductivity data and depth to the top of the till
- Define the relative nature and horizontal and vertical extents of volatile organic compounds (VOCs) in soils and groundwater
- Determine the locations of groundwater monitoring wells
- Collect soil and groundwater grab samples to correlate MIP readings to quantitative analytical VOC concentrations

This memorandum summarizes the following:

- Description of field activities performed, including locations, methods, and deviations from the site-specific project plans
- A summary of sample locations, depths, and observations
- MIP logs have been included as Attachment 1

Field Activities

The MIP investigation and the confirmatory soil and groundwater grab sampling were conducted by Innovative Probing Solutions of Mt. Vernon, Illinois. The MIP investigation and sampling procedures and observations are discussed in the following sections.

MIP Investigation

Locations

The initial MIP locations in Plant 2 proposed in the FSP were based on a 200-foot grid with tighter, focused probe locations completed on a 100-foot grid spacing within areas of known or suspected contamination. These initial MIP locations were based on concentrations of trichloroethylene (TCE) previously detected in groundwater samples and the till elevations reported during previous investigation activities at OMC Plant 2. Analytical results from previous investigations also indicated elevated TCE concentrations (greater than 10 µg/L) in areas outside the building near the northwestern portions of the site and areas just south and west of the Corporate Building.

The actual MIP locations were adjusted based on the interpretation of the results in the field and the preliminary analytical results. A total of 95 MIPs were conducted at the OMC Plant 2 site and south of the site on the Larsen Marine property. The locations of the MIP borings are shown in Figure 1. Based on the results from boring MIP-077, MIP-078 was not performed.

Investigation Procedures

The MIP probe was mounted in a van and advanced with a Geoprobe® direct-push unit. The MIP probe was connected to three detectors, including a flame ionization detector (FID), a photo ionization detector (PID), and an electron capture device (ECD) by a trunk line. In addition, the MIP probe contained a conductivity sensor. At each location, the MIP was set up and tested before the start of probing. MIP operational testing included using butane gas to determine gas travel time from the probe to the detectors. The gas travel time was then input to the computer to allow FID, PID, and ECD readings to be correlated with depth by the computer. In addition, the butane gas served as a response test for the FID sensor. Response testing of the ECD and PID was also conducted to confirm accurate detector response. Response testing of the ECD and PID sensors was performed by IPS using a TCE standard.

After confirming operation of the MIP sensors, the MIP probe was placed at ground surface, the depth reading was zeroed, and the probe location was input to the computer. For locations inside the building, the concrete floor was cored before probe advancement and the ground surface elevation was zeroed to the base of the cored concrete. The probe was then allowed to warm to 121°C before advancement. The probe was advanced in 1.5-foot discreet intervals. After each 1.5-foot probe advancement, FID, PID, and ECD readings were allowed to stabilize and the probe temperature was allowed to recover. Advancement of the probe in 1.5-foot intervals continued until refusal was encountered, generally at the till surface.

If refusal was encountered at a depth above the anticipated till depth, the probe was removed and decontaminated, and the boring was abandoned. A new probe location was attempted at an offset of 6 feet. Offset probe locations were given the same location ID; however, consecutive letters were added to identify the locations as offsets (e.g., MIP-001a, MIP-001b, etc). Offset locations were noted in the field notebook.

The MIP logs presenting the FID, PID, and ECD readings with depth for each location are included in Attachment 1.

Decontamination

After the probe location was completed, the probe and rods were removed from the borehole. As each rod was removed, it passed through a rod-wiper to remove any excess soil. Each rod was then placed in a rod holder until all rods were removed. The rods, rod rack, trunk line, and probe were decontaminated by spraying them with a solution of Liqui-Nox® and water, and scrubbing with a nylon brush. All equipment was then rinsed with potable water. The decontamination water was collected and placed into a poly tank for storage and disposal.

Deviations from Proposed Procedures

As probing commenced, it became apparent that the process for probe temperature recovery would need to be modified. With air temperatures below freezing, depth to groundwater less than 4 feet, and groundwater temperatures at or below 50 degrees, allowing the probe to recover to 121°C before advancement could not be accomplished. In most cases, the sensor readings stabilized in less than 2 minutes, while it took nearly 10 minutes for the temperature of the probe to recover to 90°C. In order to allow work to continue and ensure data integrity, the procedure was modified to allow the probing to continue when detector readings had stabilized and the probe temperature had reached at least 90°C.

At few locations the probe did not reach 90°C because of extreme cold weather conditions. At these locations, the probe temperature was allowed to recover for an additional 10 minutes after detector readings were stable before advancement was resumed.

The MIP probe often required repairs during completion of a probe location. In these cases, the probe was removed from the boring, decontaminated, and repaired, and probing resumed in the same borehole. Because of MIP software limitations, the rerun of the same borehole was assigned the same location ID with a consecutive letter added to identify the probe as a rerun of the same borehole (e.g., MIP-001a, MIP-001b). The rerun was then noted in the log book. This naming convention was also used to designate a boring offset location. Field notes were referenced to differentiate the offset boring locations from rerun boring locations.

Approximately 65 MIP locations beneath the existing building were planned with an additional 25 borings available for delineation. The MIP investigation beneath the existing building was completed with 45 MIP locations. An additional 50 MIP locations were performed outside the existing building. The number of MIP locations was modified because MIP logs indicated less extensive soil and groundwater contamination beneath the building than anticipated. MIP locations outside of the building were added to delineate contamination indicated by MIP logs performed during initial MIP investigation activities.

Soil and Groundwater MIP Confirmation Sampling

A total of 95 MIP locations were completed as part of the OMC Plant 2 investigation. The data recorded by the MIP sensors is a relative response reading. The MIP sensors do not report quantitative VOC concentrations. To correlate MIP sensor response to VOC concentrations, soil and groundwater samples were collected from 10 percent of the MIP locations.

Locations

The locations for the soil and groundwater grab samples for confirmation of the MIPs' response are identified in Figure 1. The locations were selected such that the samples would be collected from locations exhibiting a range of sensor responses. The results of this effort will be used to develop a response versus concentration curve for the investigation.

Sampling Procedures

Soil samples were collected from above the water table using a Geoprobe® direct push unit and were analyzed for VOCs. Soil samples were collected in accordance with *FOP-03 Direct Push Soil Sample Collection*. Groundwater grab samples were collected from three discreet depths at each MIP location. Depths of groundwater grab samples were selected based on MIP detector response logs.

Groundwater grab samples were collected using a Geoprobe® direct push unit equipped with a discreet screen-point sampler with a 3-foot screened interval. The screen point was advanced to the target depth and the screen was opened. Prior to sample collection, approximately 1 gallon of water was purged from the interval using disposable Teflon® tubing equipped with a check valve. After 1 gallon of water had been purged, the groundwater sample was collected by filling three, 40-mL glass vials preserved with hydrochloric acid. All equipment and tooling used for soil sampling and groundwater grab sampling was decontaminated between samples in accordance with *FOP-17 Rig and Equipment Decontamination*. All groundwater was purged into a 5-gallon bucket and transferred to a poly tank onsite.

Deviations

Based on MIP sensor response, NAPL was encountered at the base of MIP-027. A groundwater grab sample was collected at MIP-027. NAPL samples were to be collected using a Teflon® or stainless steel bailer or a peristaltic pump with Teflon® tubing. Because the nonaqueous-phase liquid was denser than water and at a depth greater than 25 feet, it could not be recovered with a peristaltic pump. The diameter of the discreet sampling tool was not large enough to allow collection with a bailer. NAPL collection was accomplished using Teflon® tubing equipped with a check valve at the bottom end of the tubing.

Reference

CH2M HILL. 2004. *Field Sampling Plan, OMC Plant 2, Waukegan, Illinois, Final*. November.

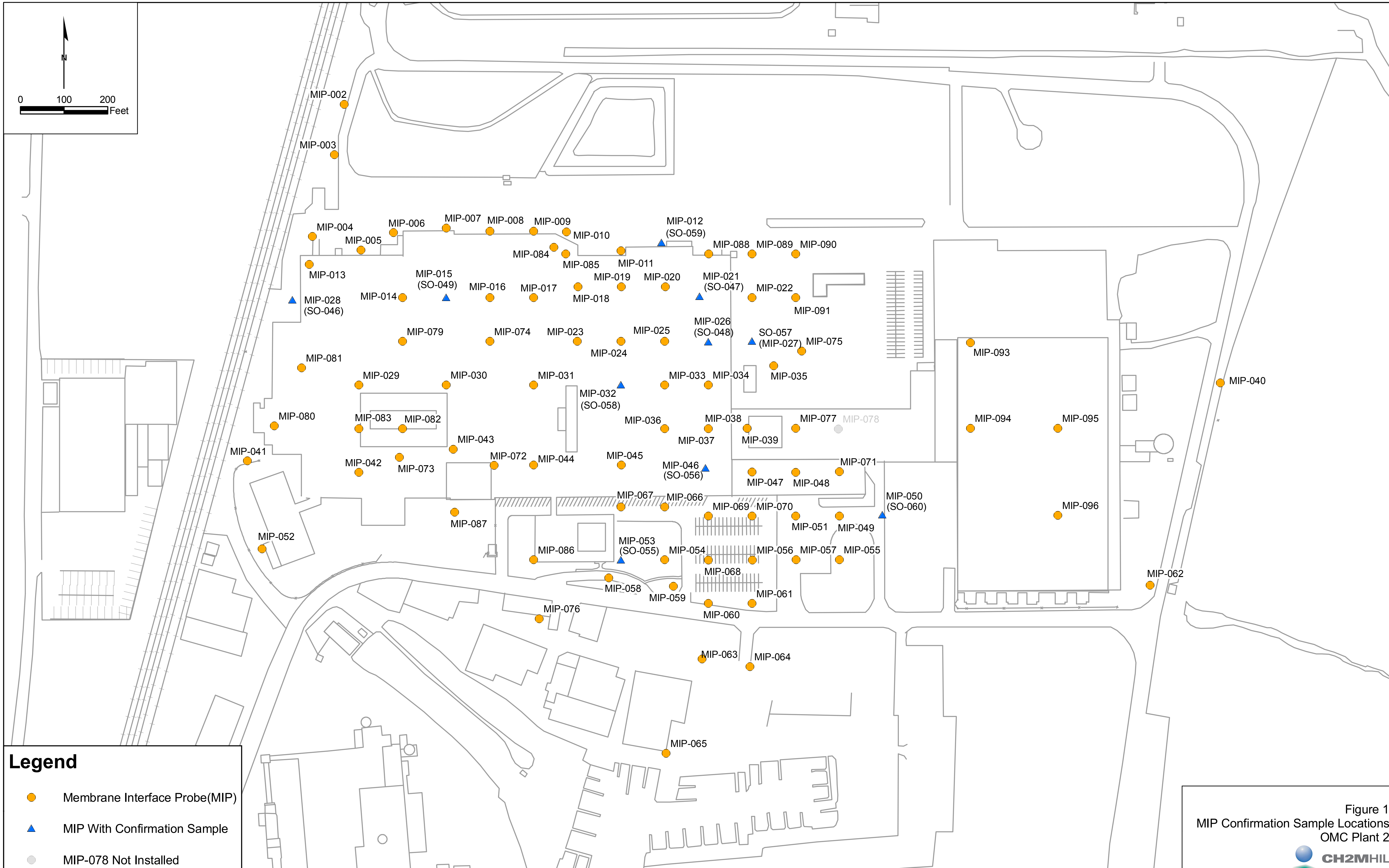


Figure 1
MIP Confirmation Sample Locations
OMC Plant 2

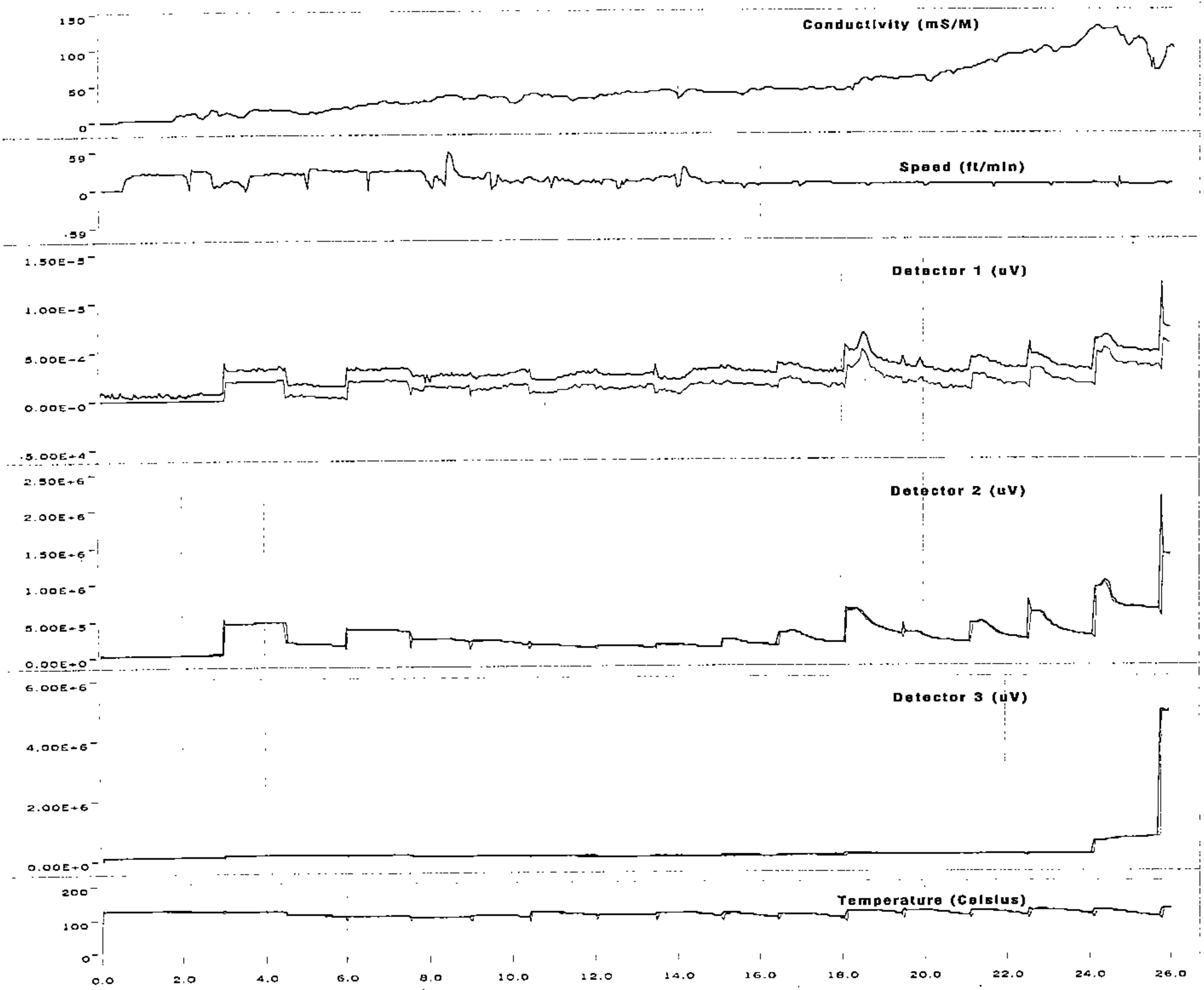
File Path: E:\EPA\186305-OMC\GIS_DATA\MXDS\July05\Fig1_MIP_Confirmation_Locations.mxd, Date: 08 01, 2005 3:15:39 PM, User: JHANSEN1

Attachment 1

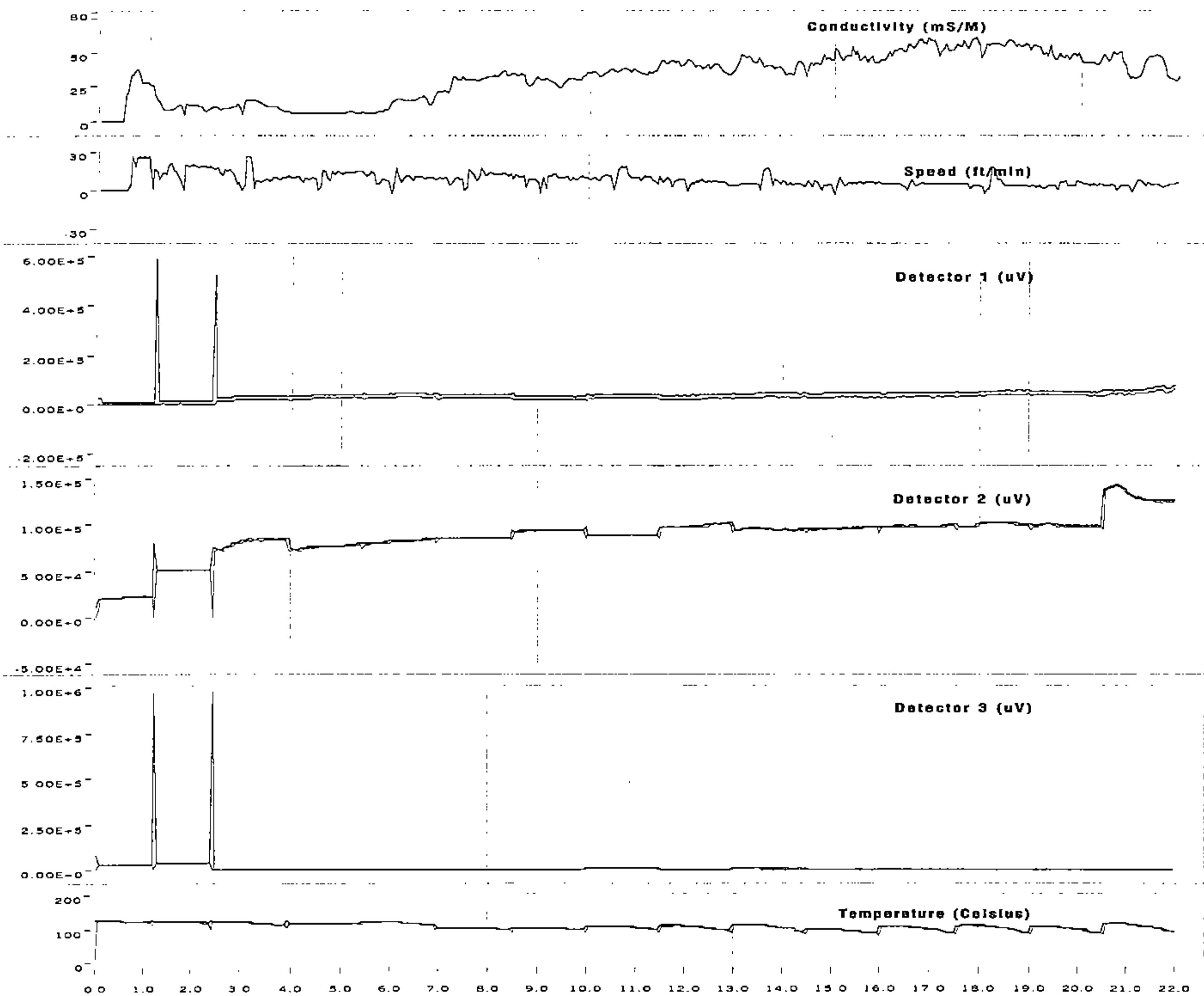
MIP Boring Logs
OMC Plant 2 (Operable Unit 4)

MIP LOGS
PRODUCED IN
THE FIELD

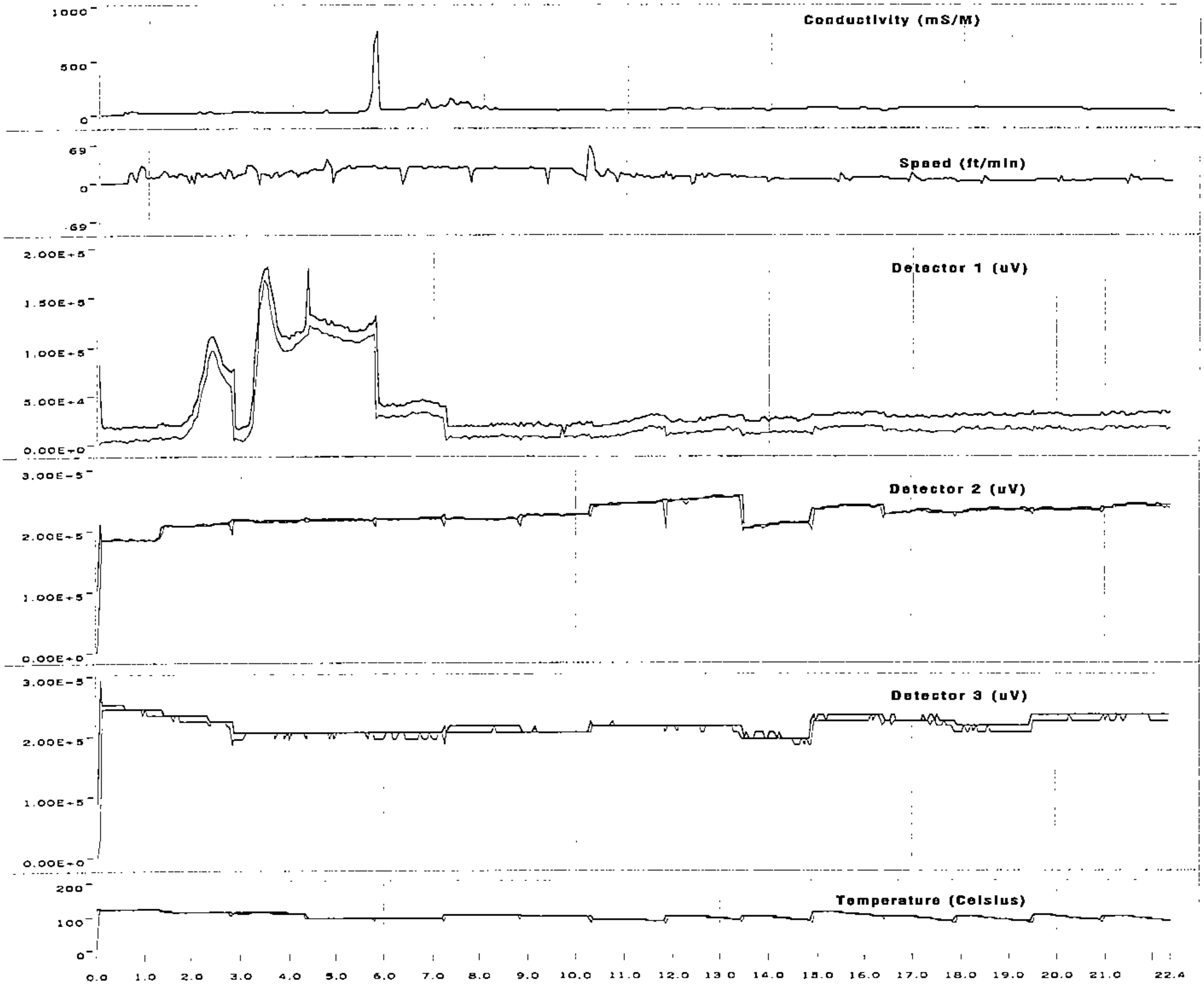
Log: C:\dirlm95\LOGFILES\Omcmp01a.dat



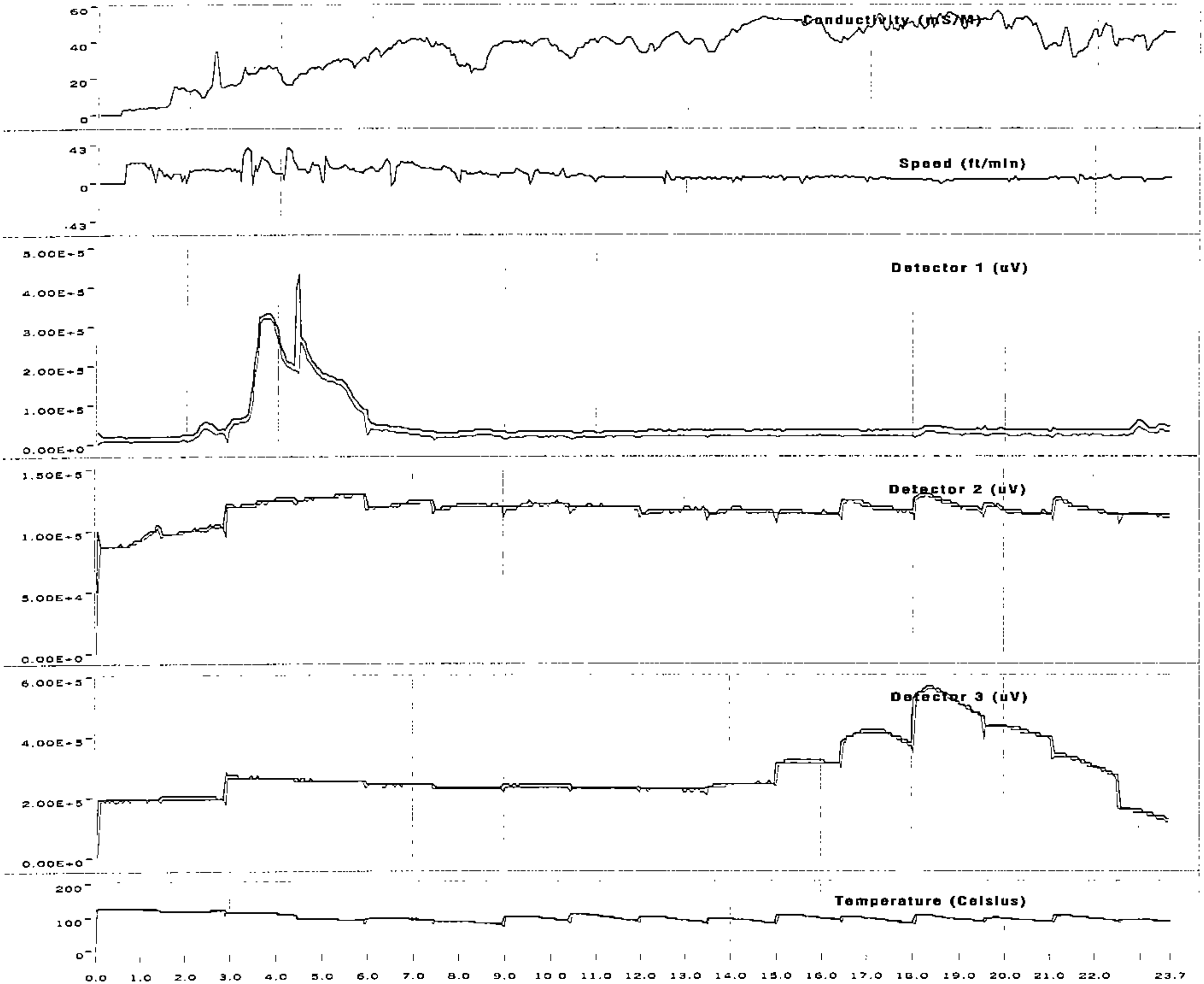
Log: C:\dlrlm95\LOGFILES\Omcmp002.dat



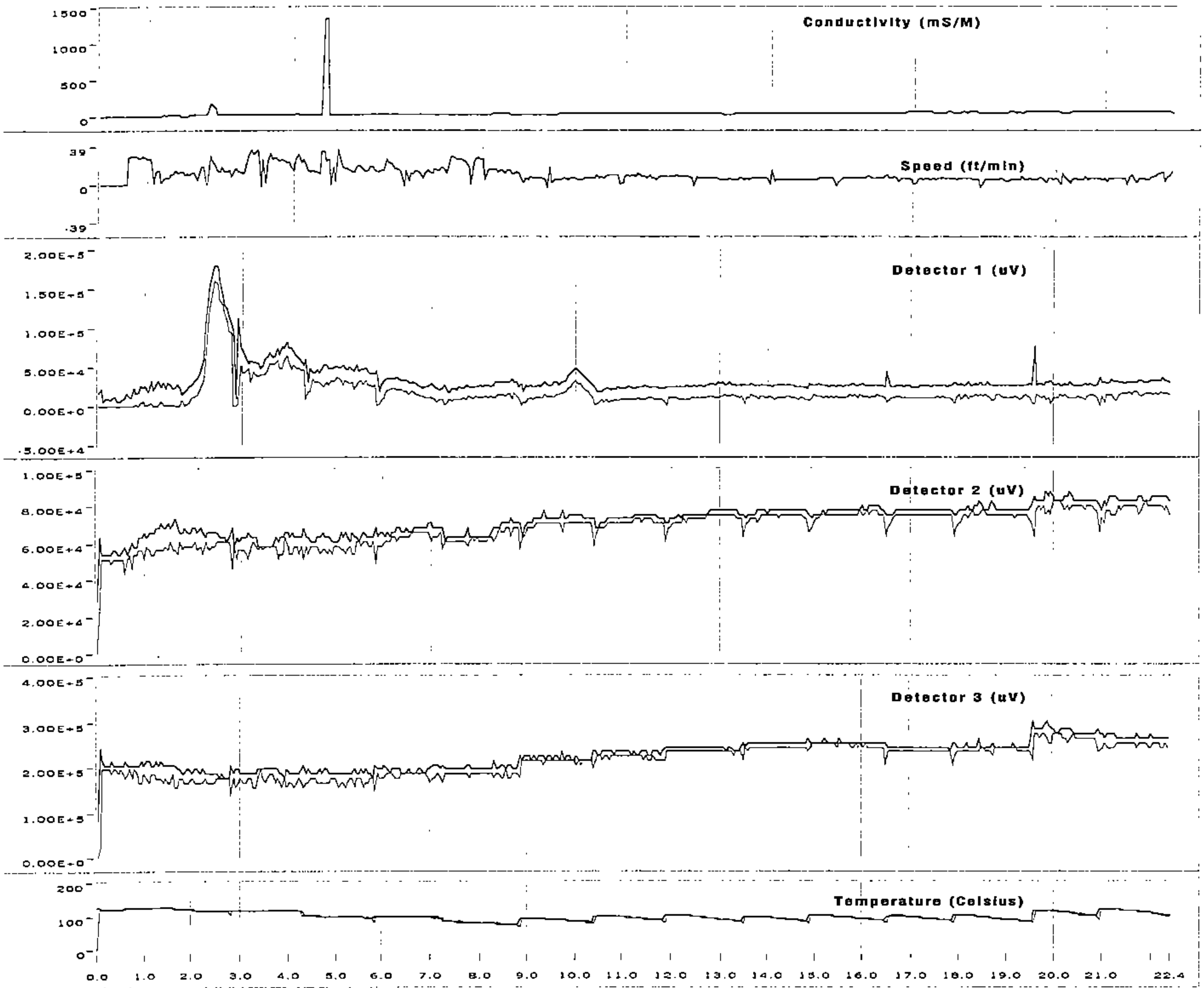
Log: C:\dlrim95\LOGFILES\Omcmp003.dat



Log: C:\dlrlm95\LOGFILES\Omcmp004.dat



Log: C:\dirlm95\LOGFILES\0mcmp005.dat



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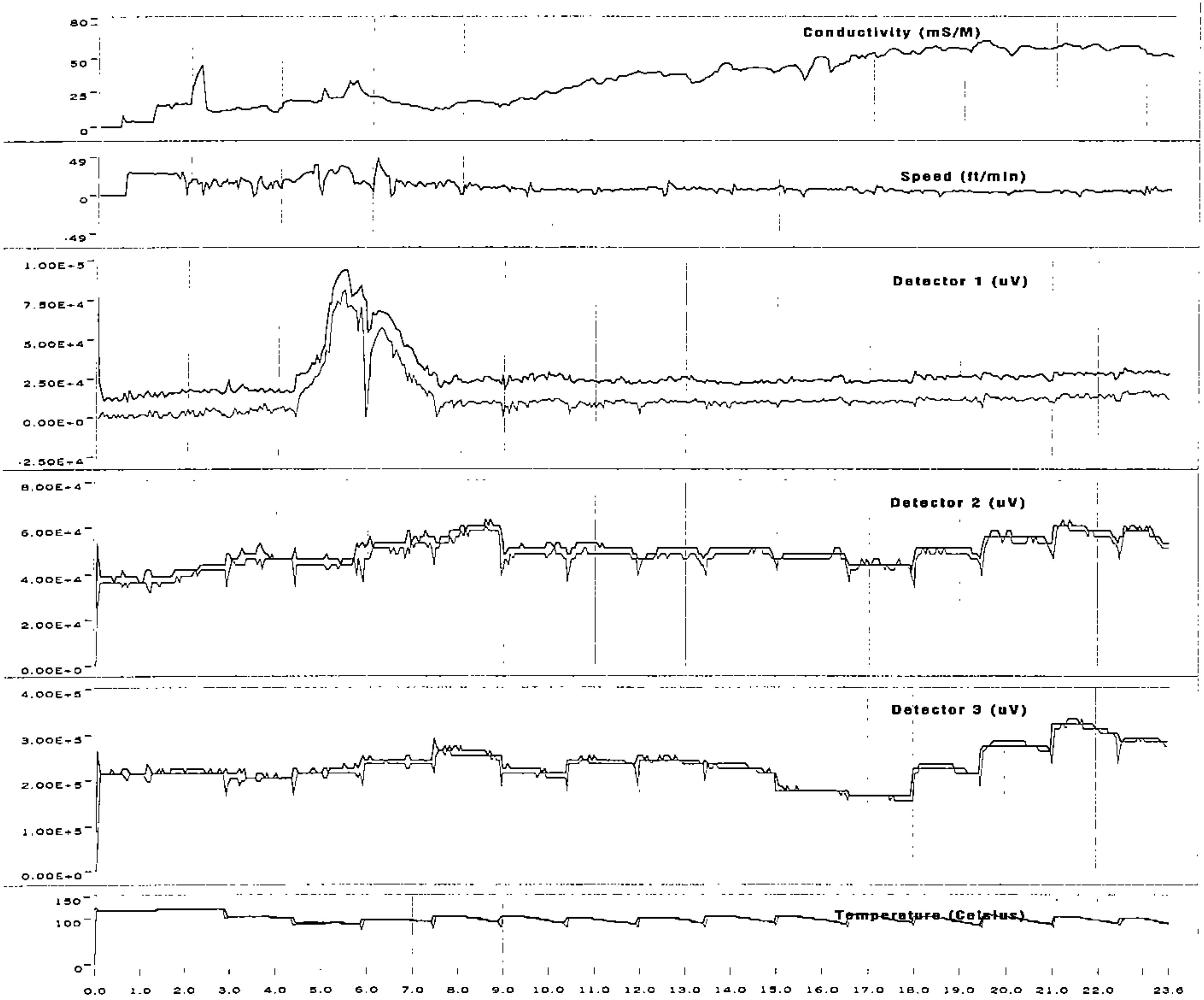

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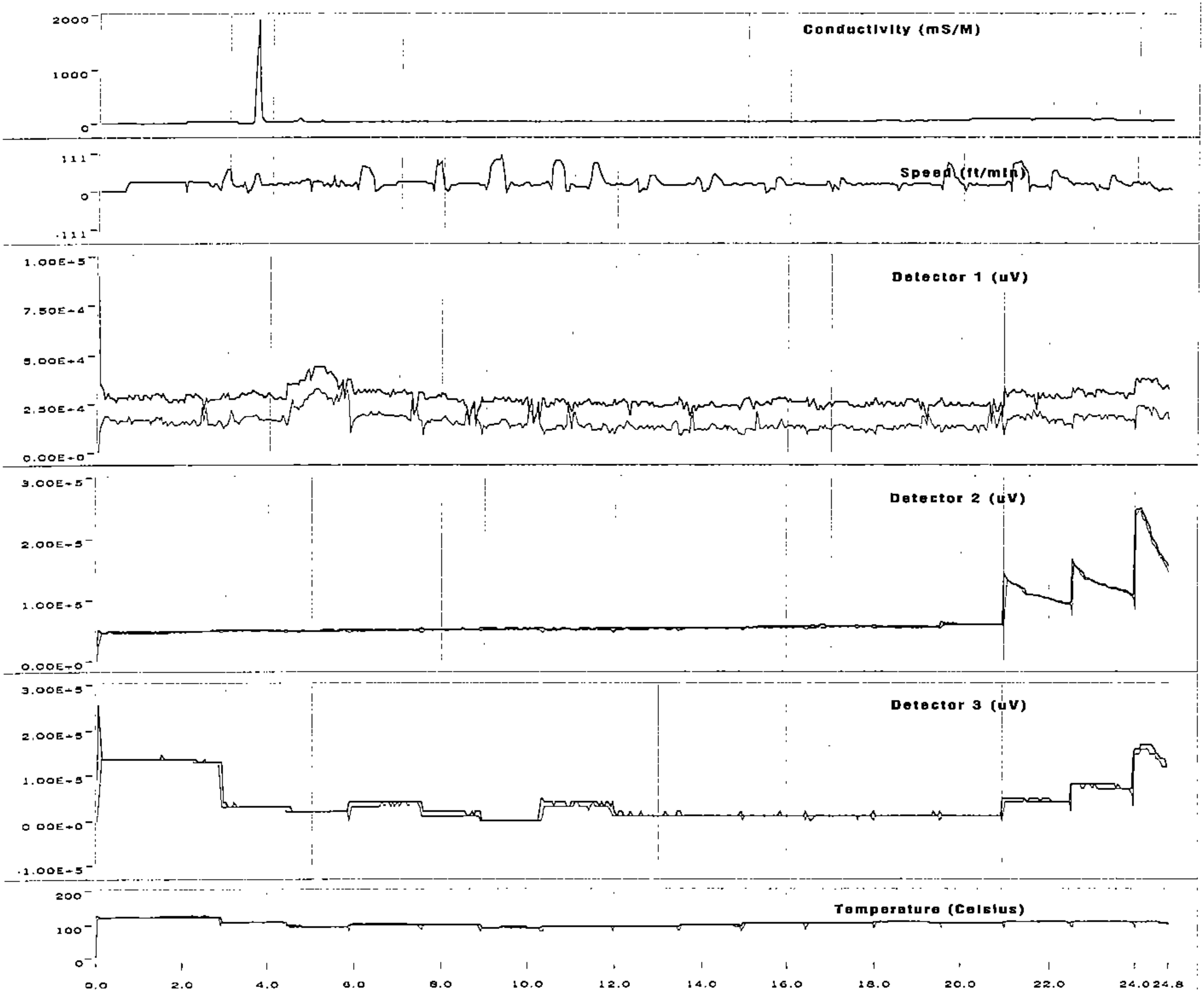

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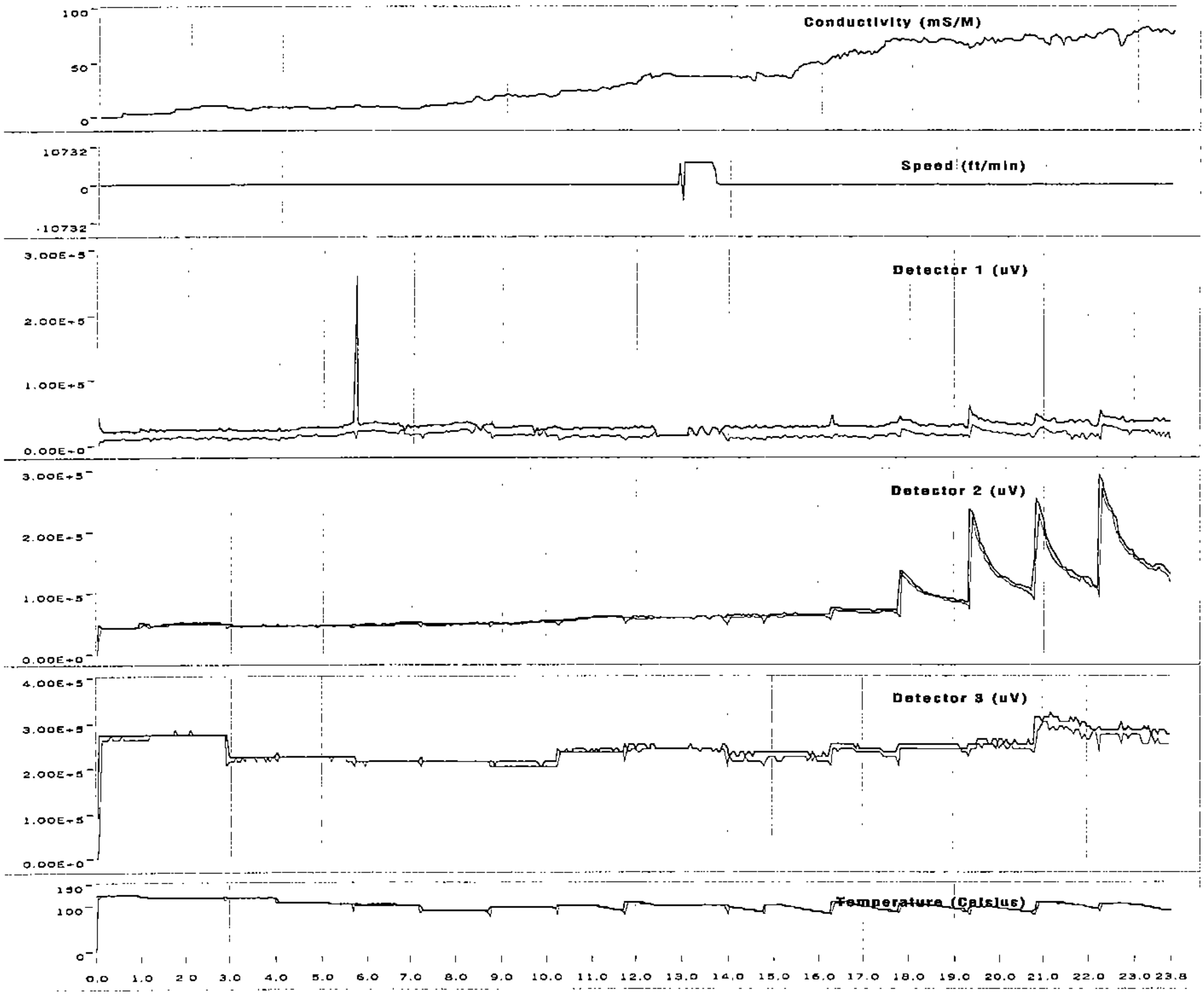
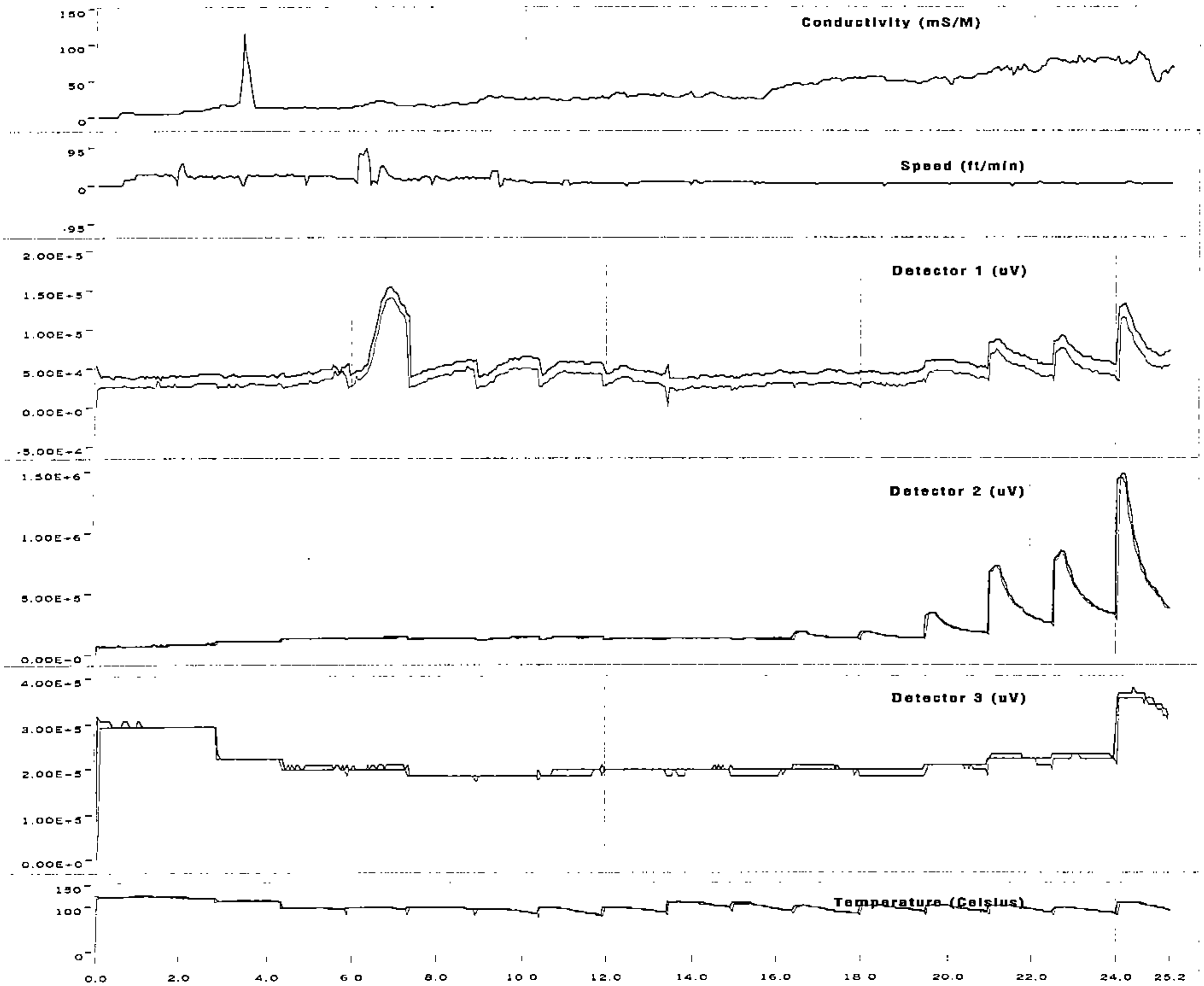


Log: C:\dirlm95\LOGFILES\Omcmp009.dat



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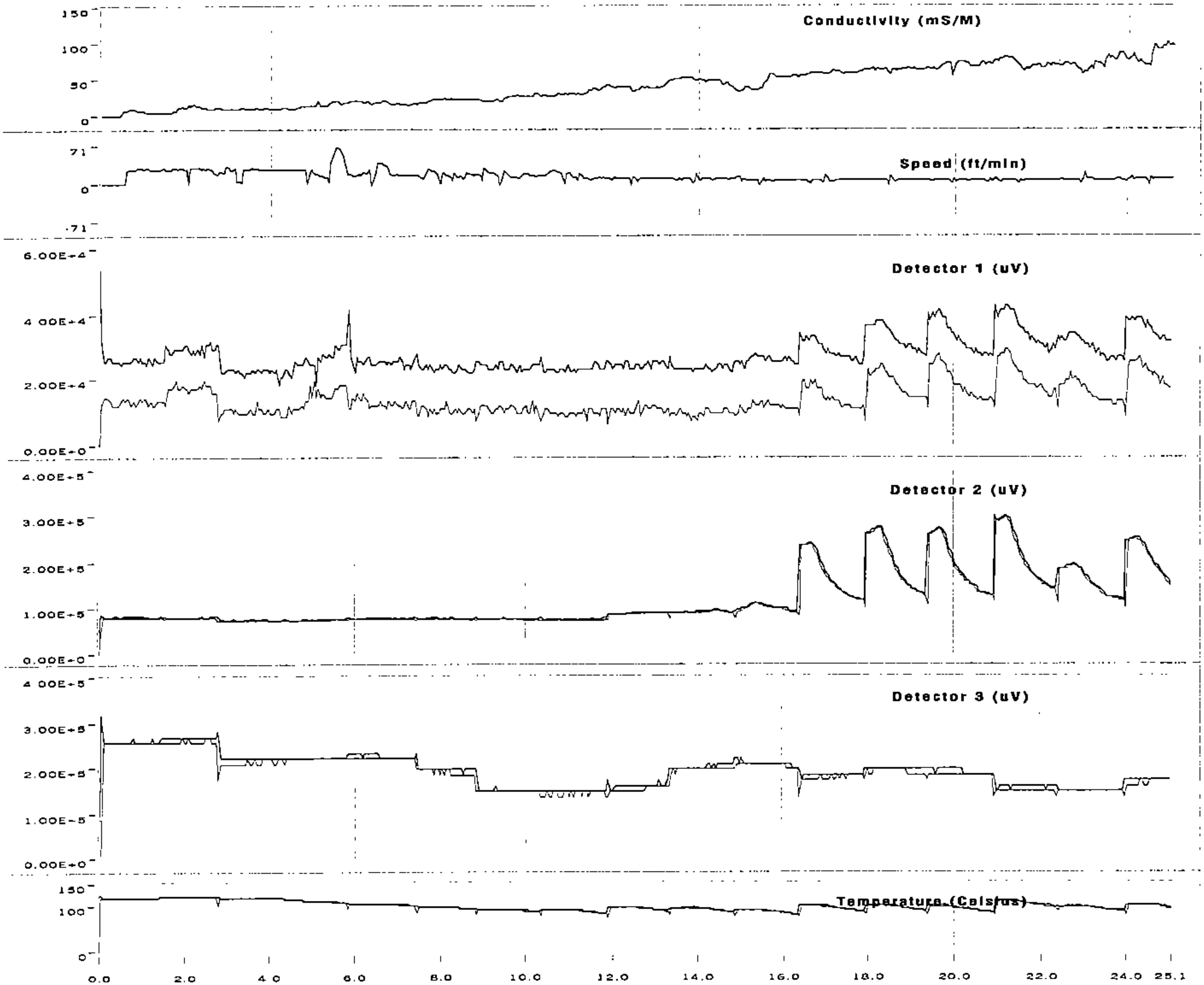

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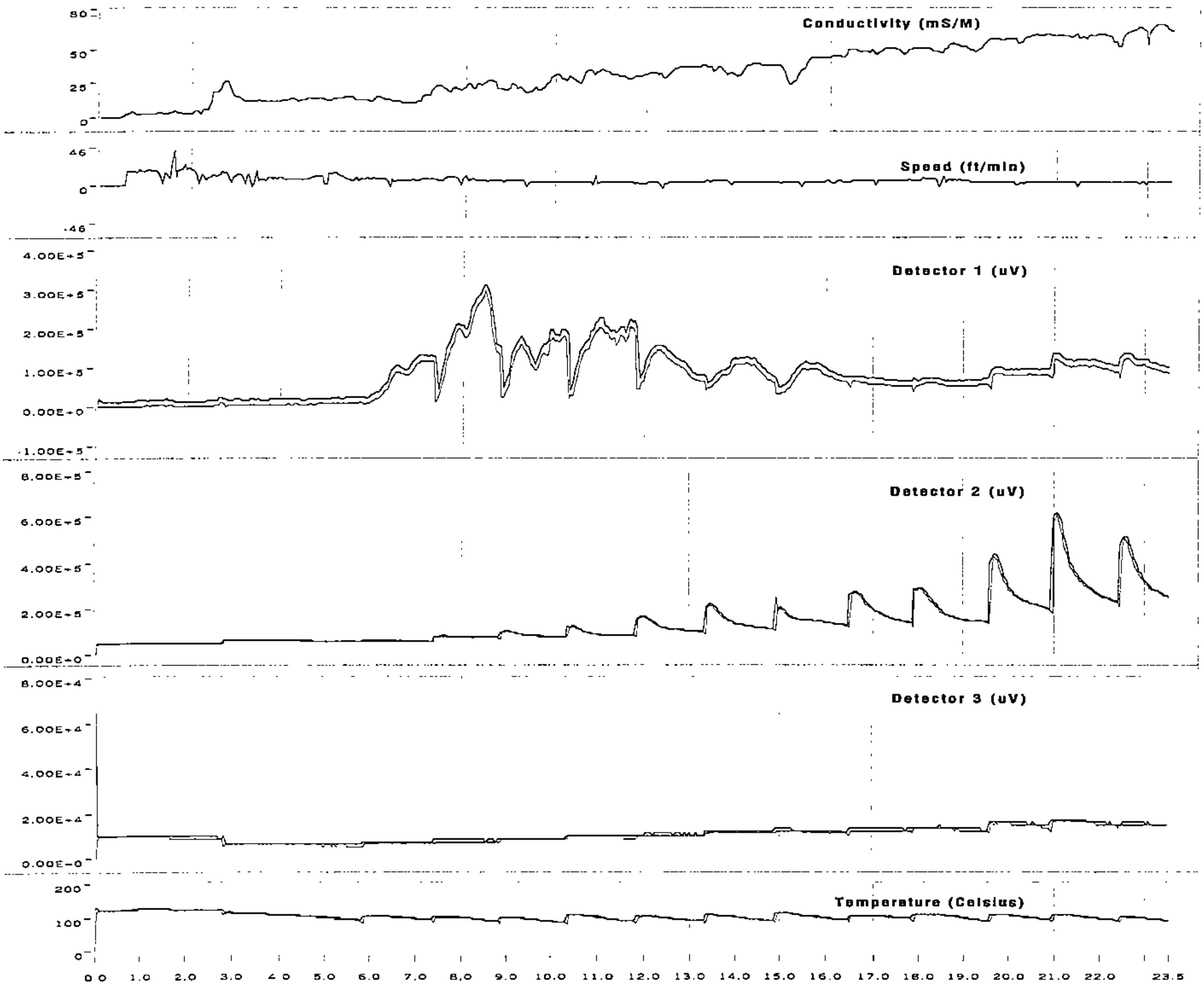

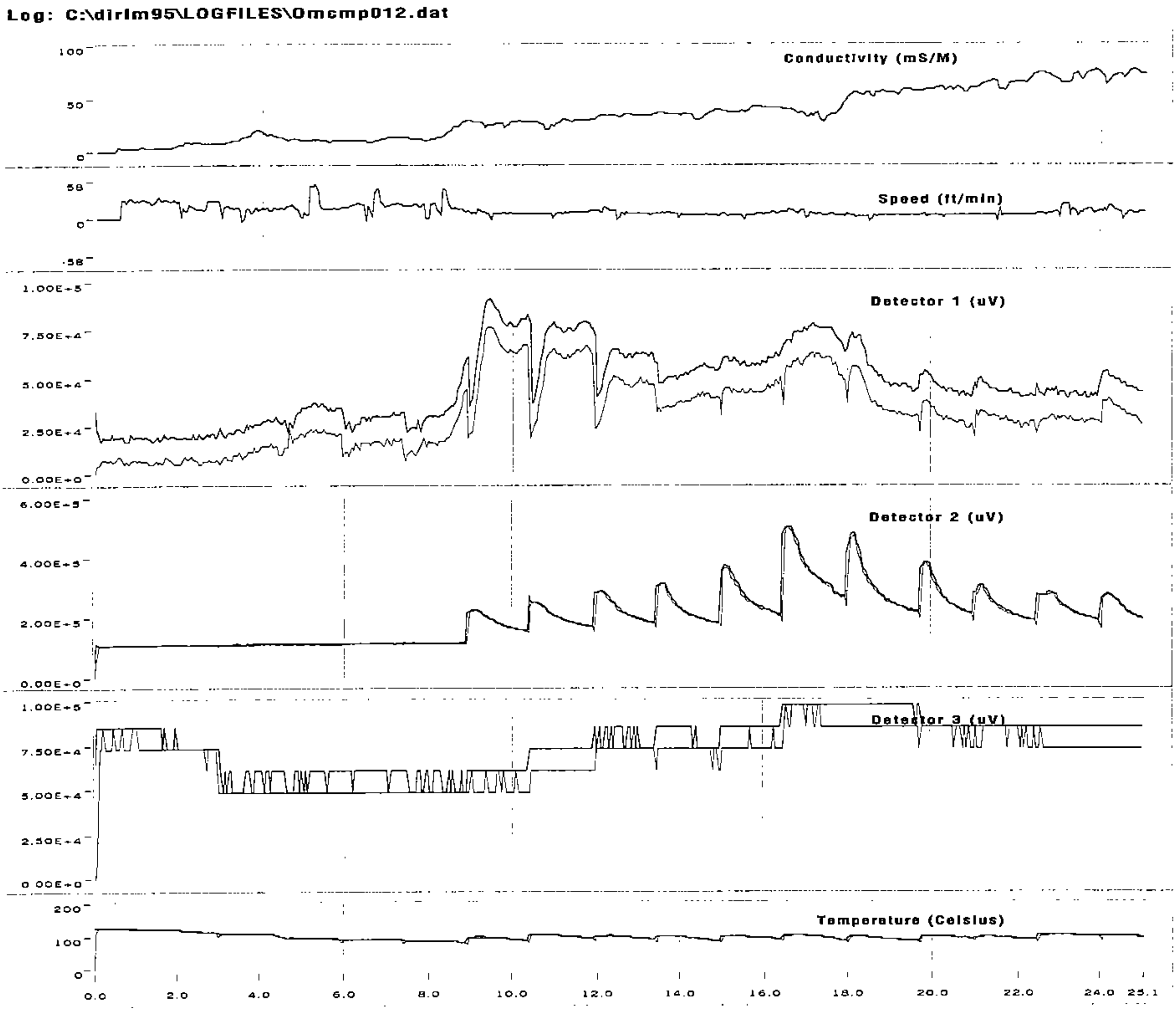
Log: C:\dirlm95\LOGFILES\Omcmp012.dat
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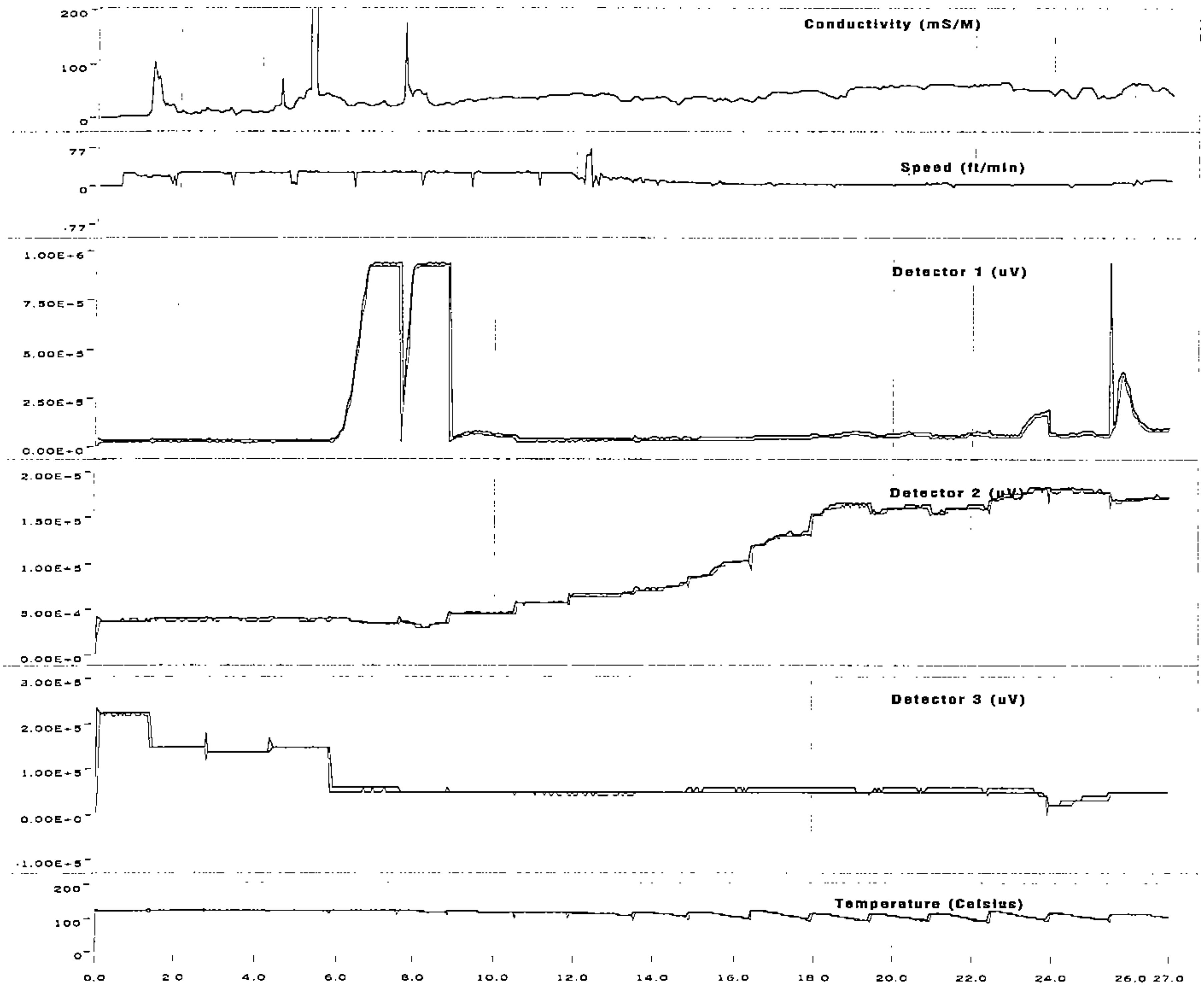
50
0
Speed (ft/min)
58
0
-58
Detector 1 (uV)
1.00E+5
7.50E+4
5.00E+4
2.50E+4
0.00E+0
Detector 2 (uV)
6.00E+5
4.00E+5
2.00E+5
0.00E+0
Detector 3 (uV)
1.00E+5
7.50E+4
5.00E+4
2.50E+4
0.00E+0
Temperature (Celsius)
200
100
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
22.0
24.0
25.1

Log: C:\dlrlm95\LOGFILES\Omcmp013.dat



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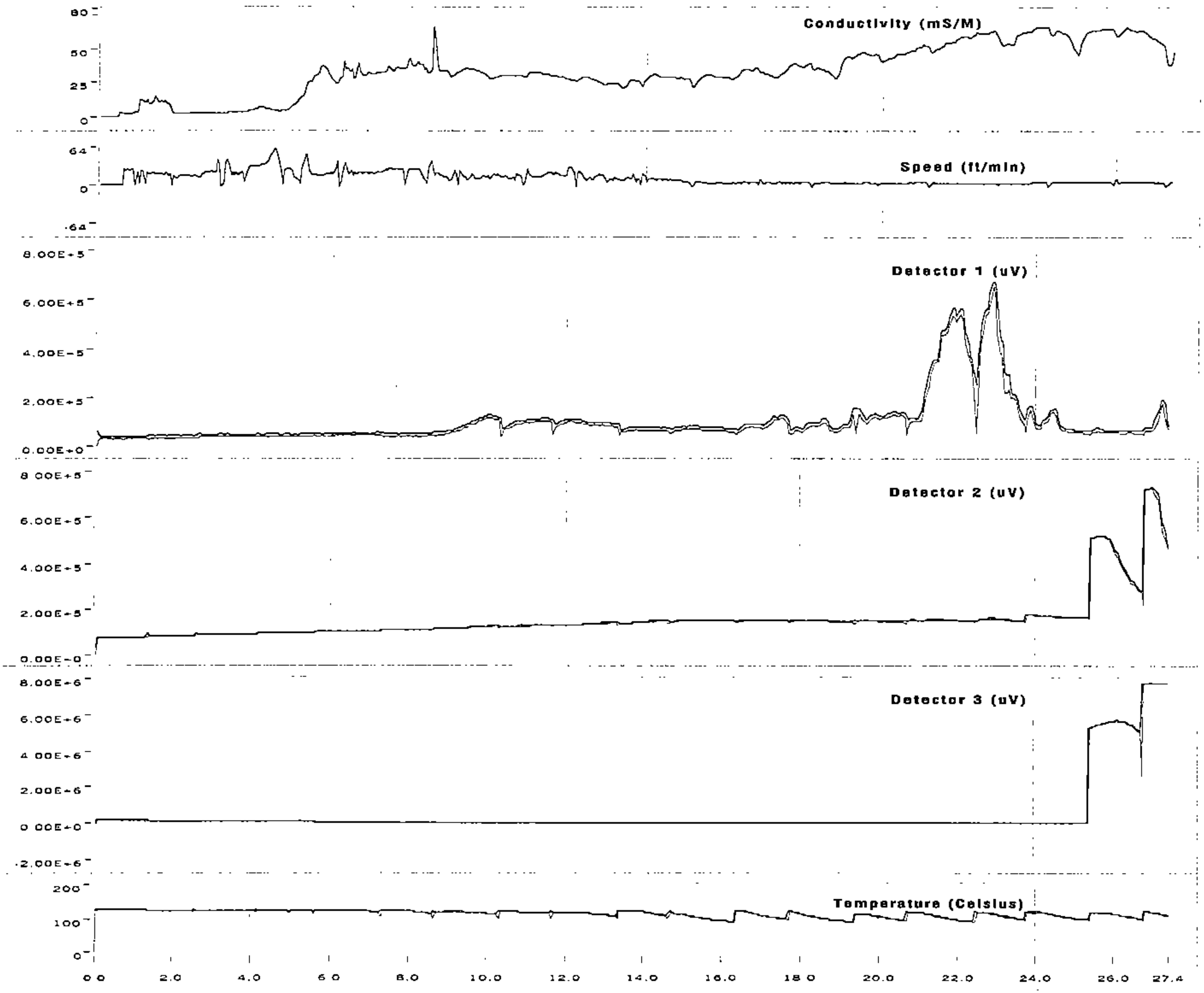
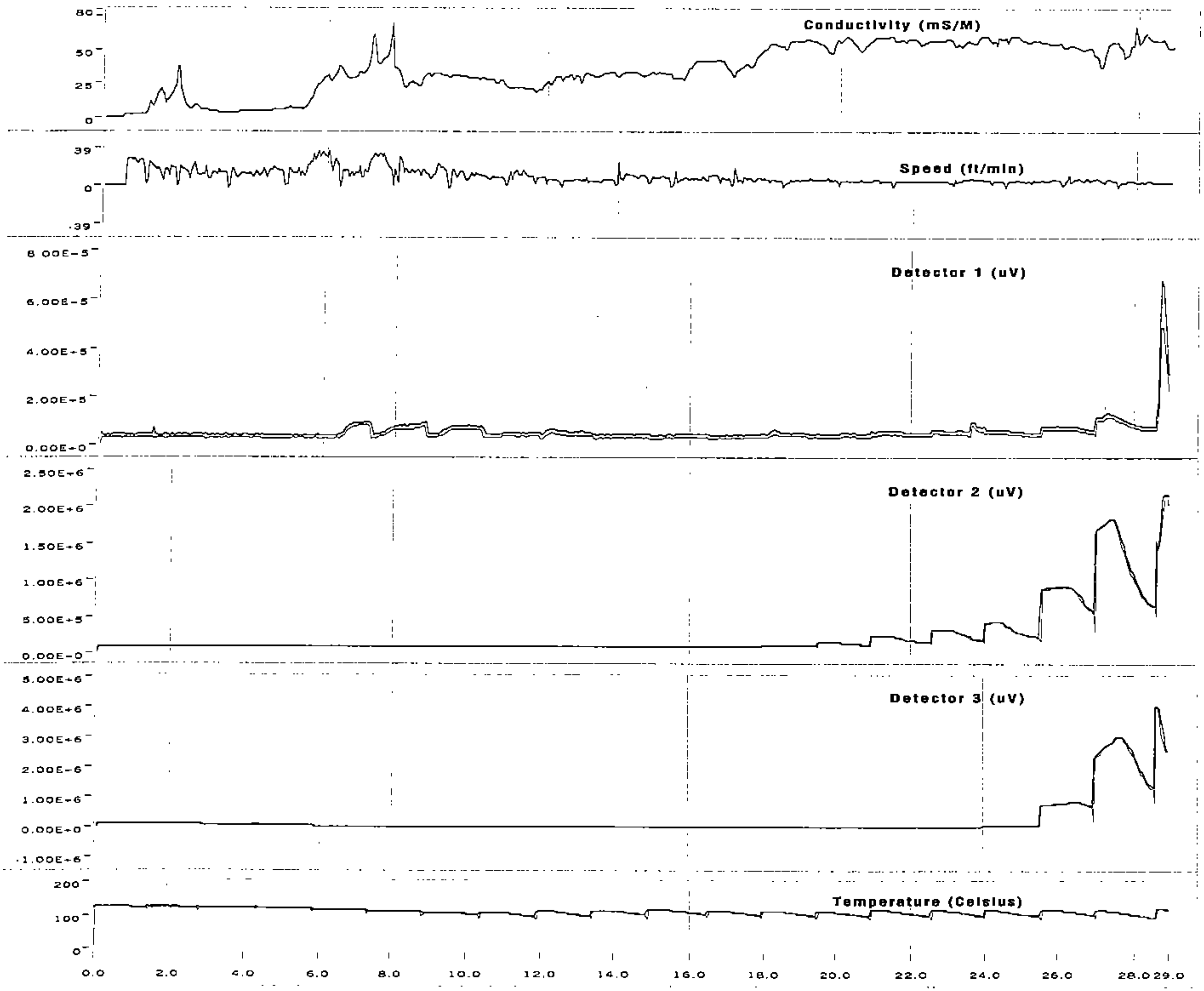
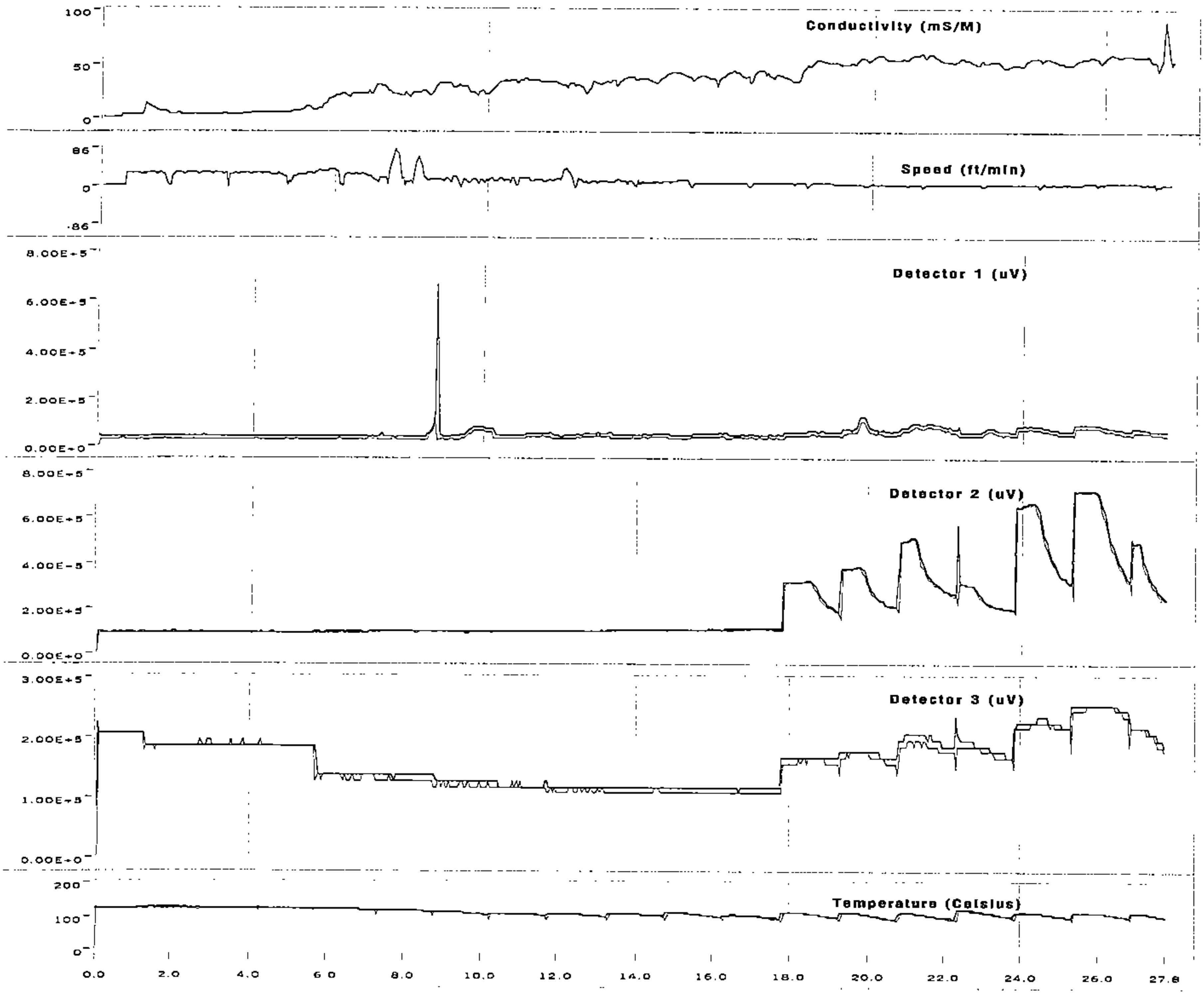


Log: C:\dirim95\LOGFILES\Omcmp015.dat



Log: C:\dirlm95\LOGFILES\Omcmp016.dat



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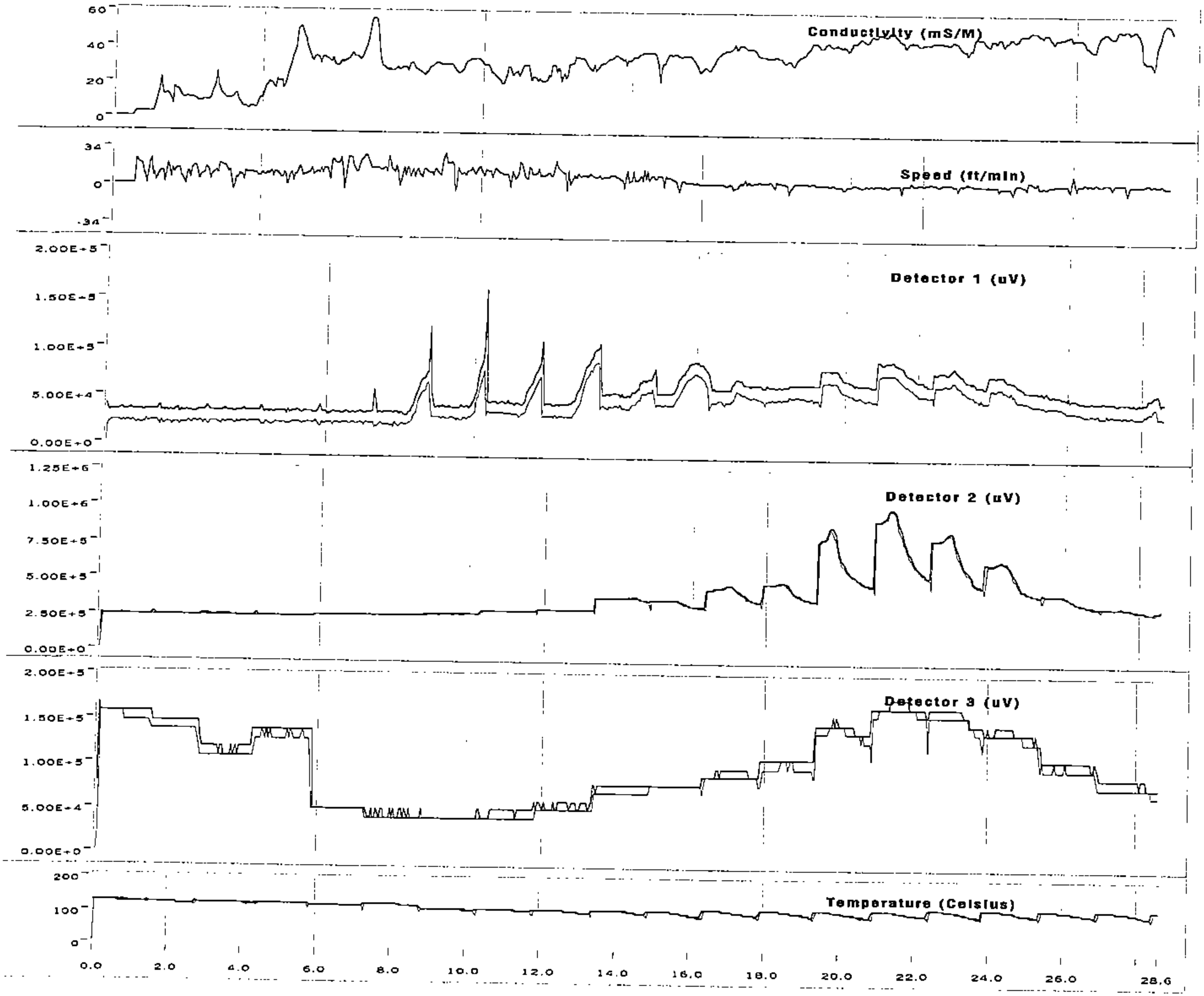

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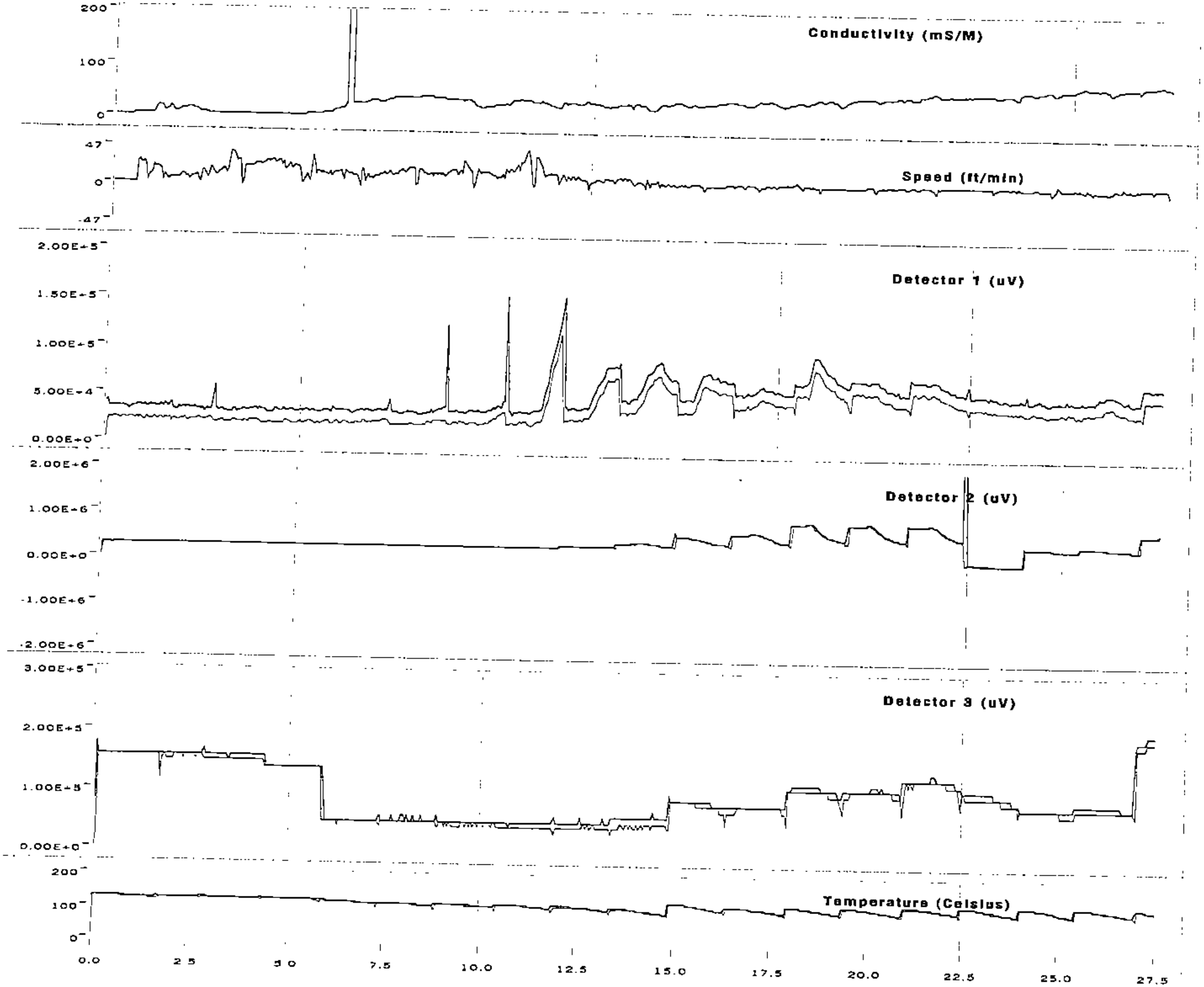
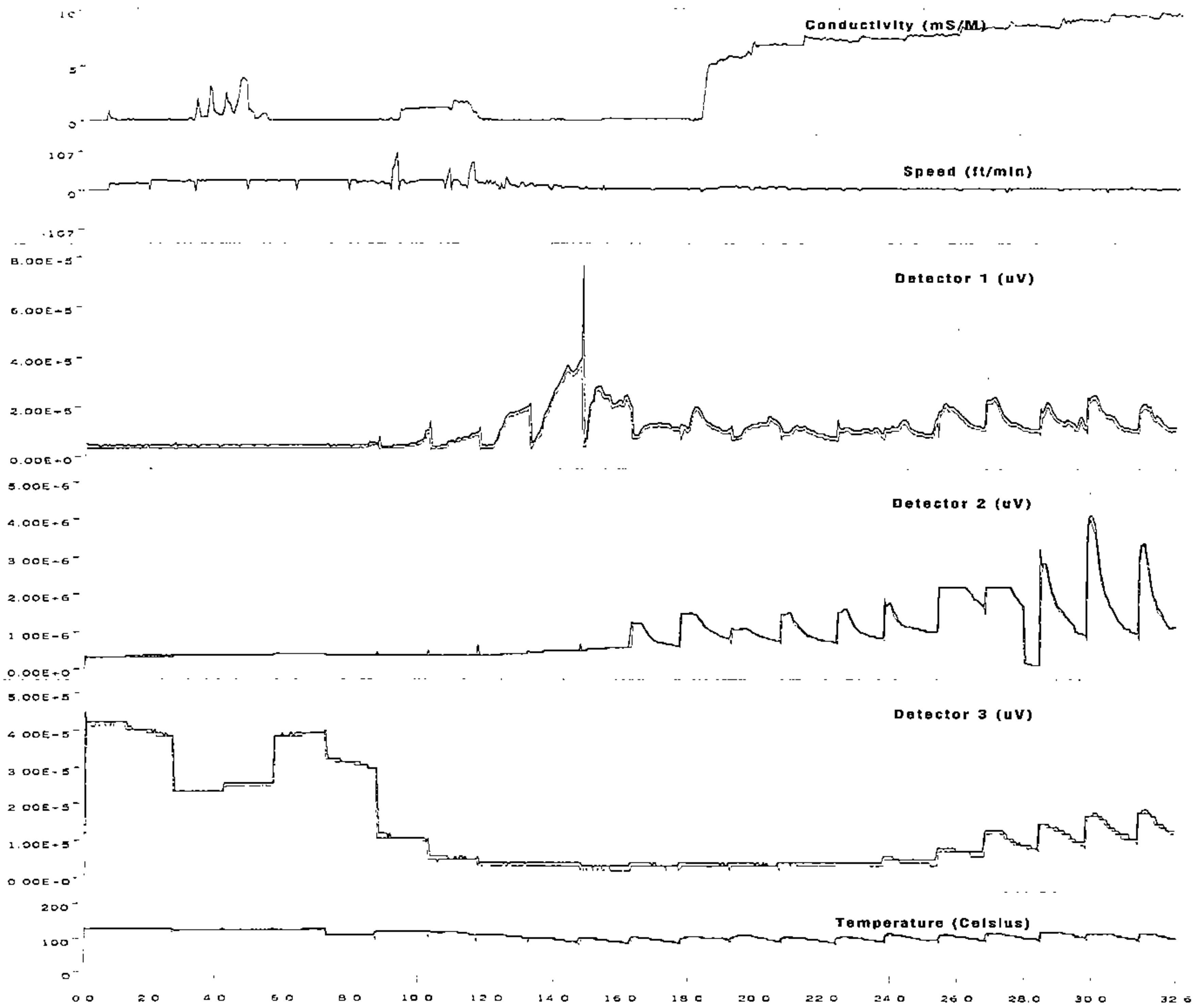
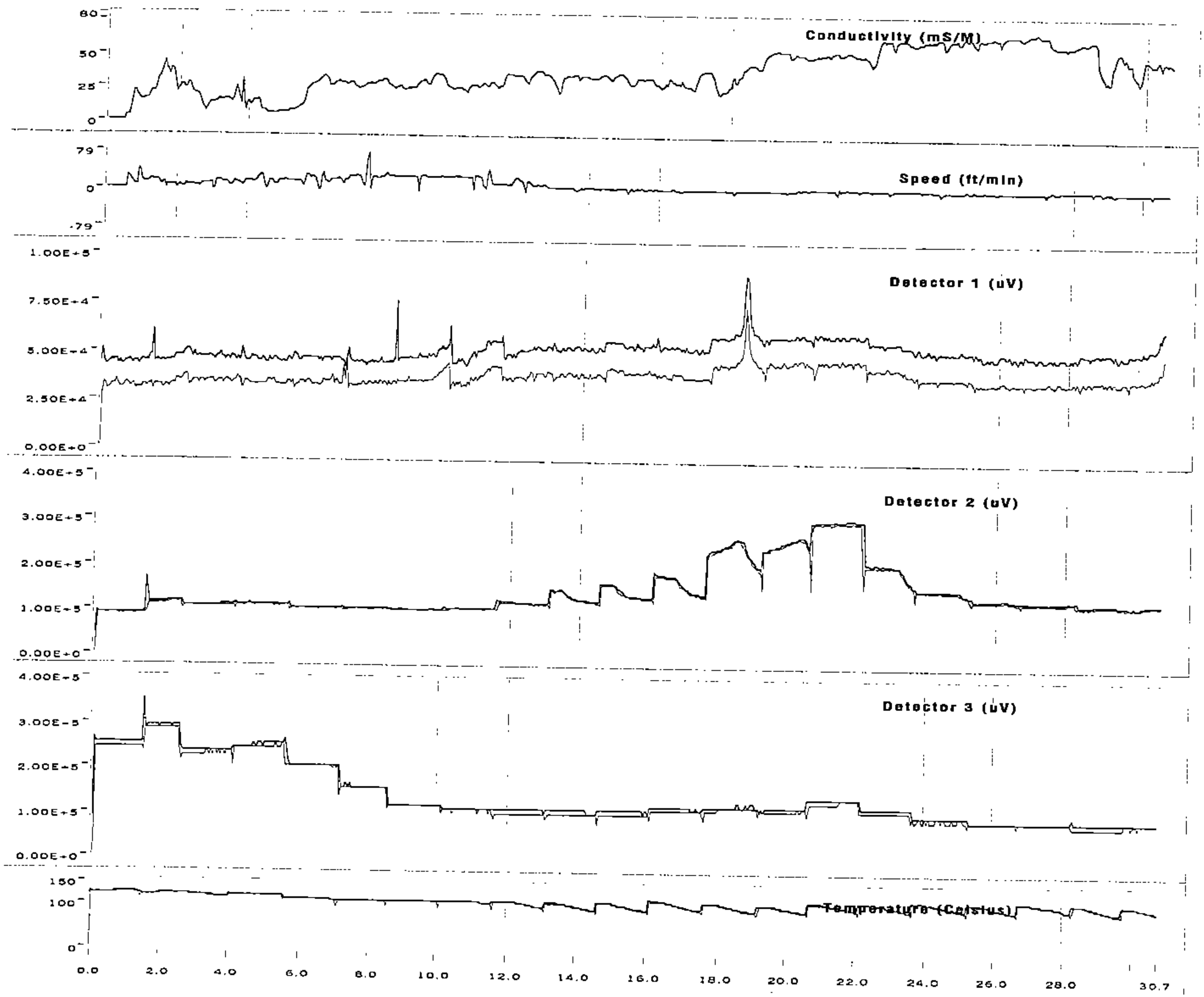


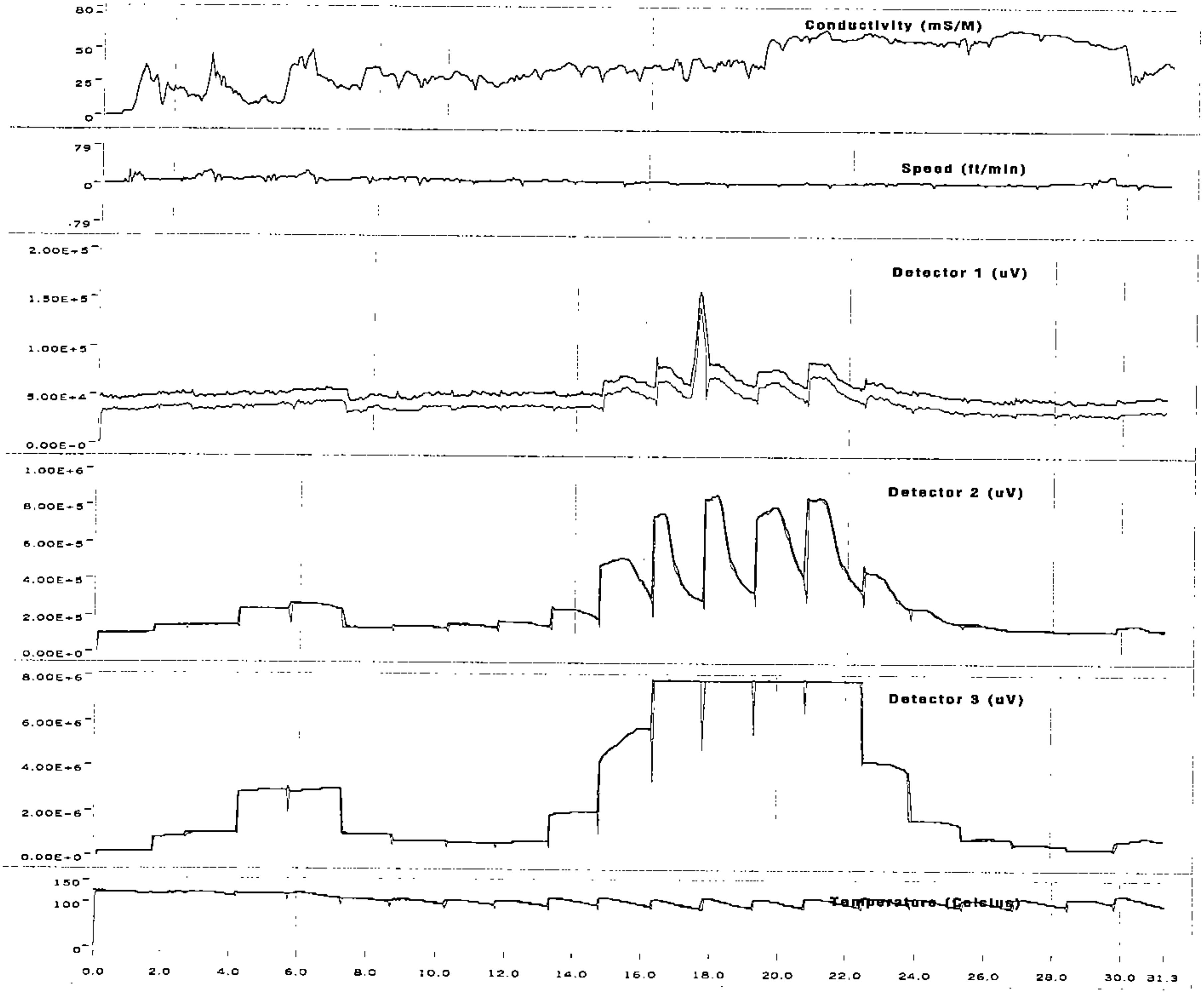
Log: C:\dirim95\LOGFILES\Omcmp19b.dat



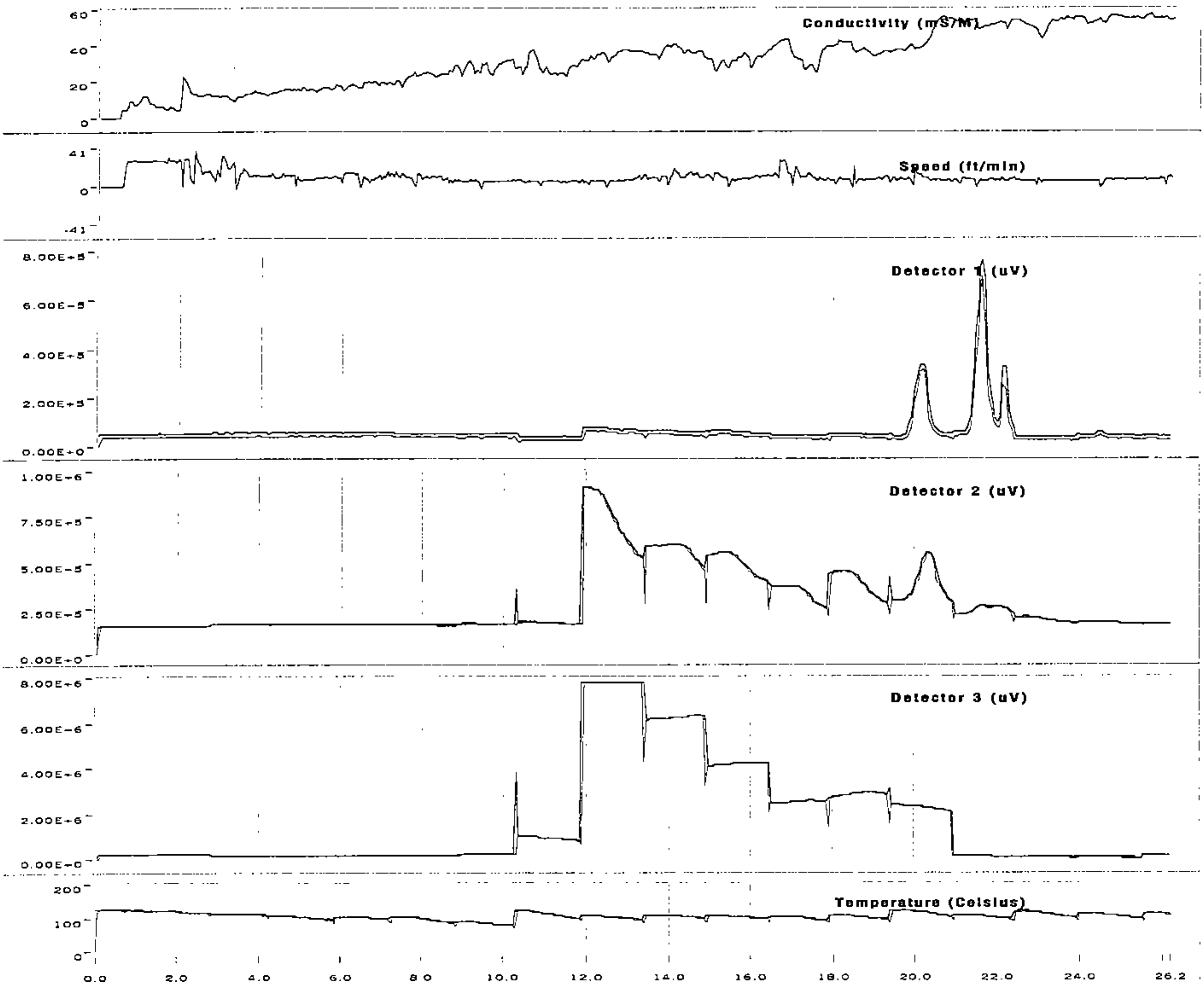
Log: C:\dirlm95\LOGFILES\Omcmp020.dat



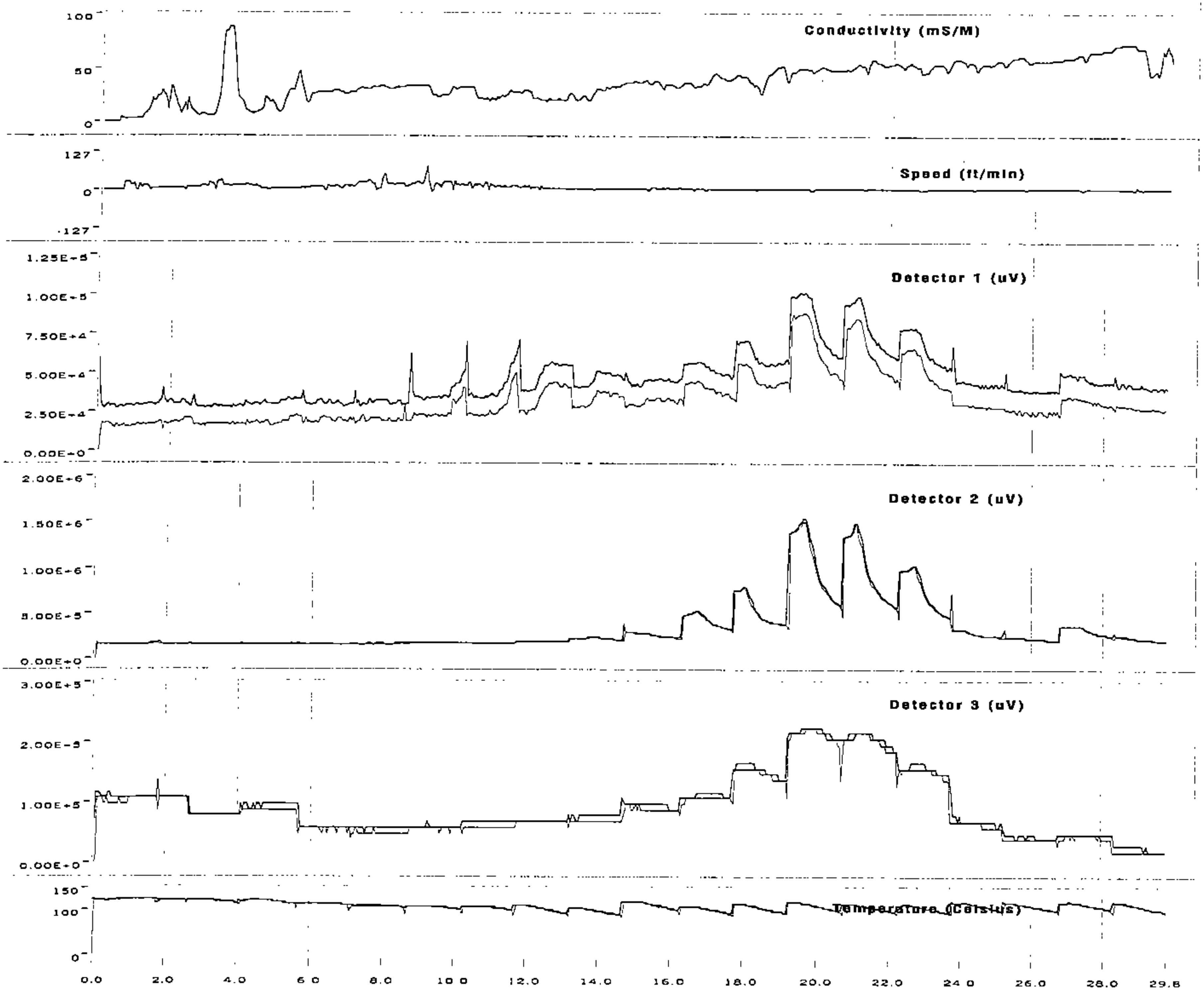
Log: C:\dfrlm95\LOGFILES\Omcmp021.dat



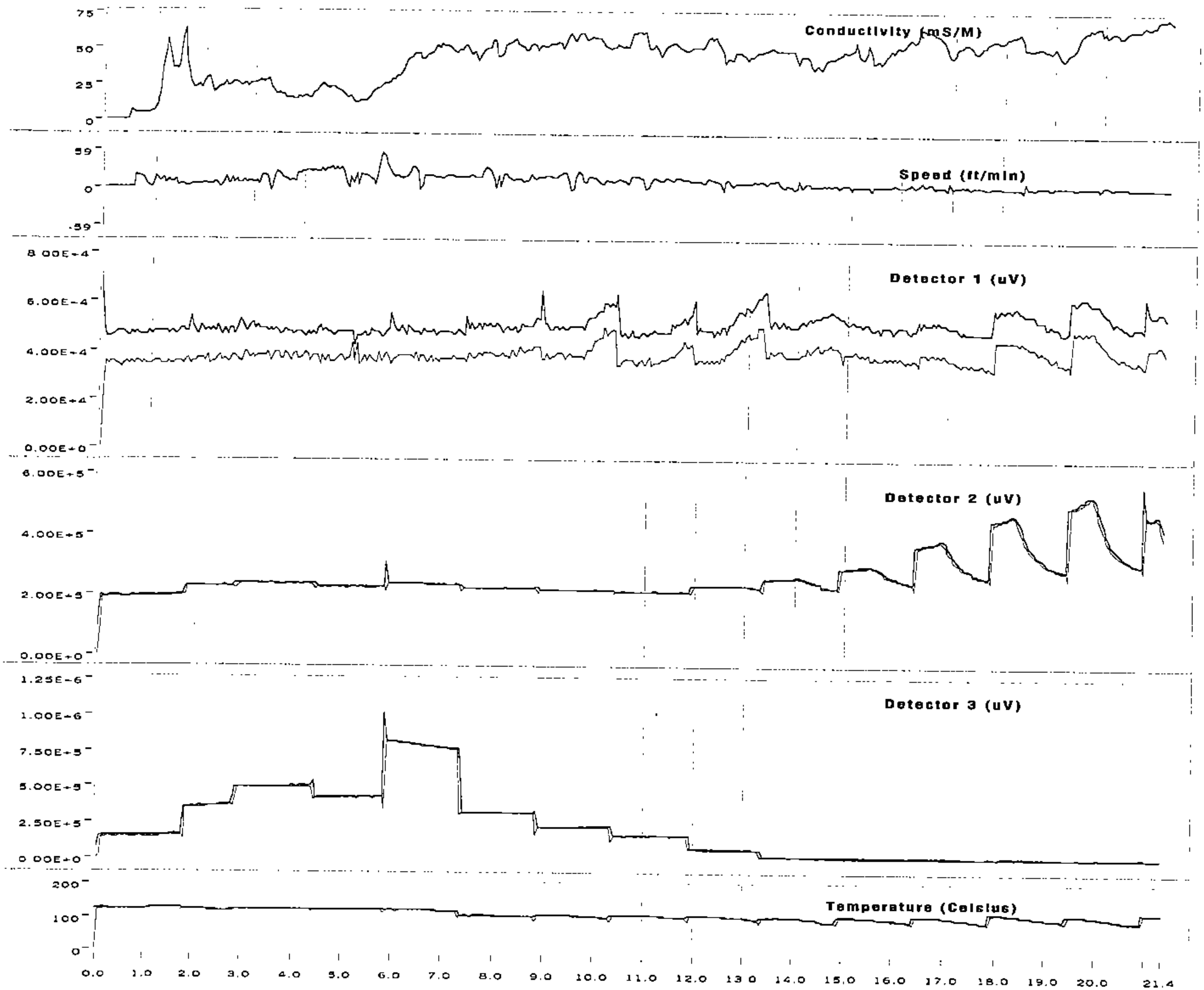
Log: C:\dirlm95\LOGFILES\Omcmp022.dat



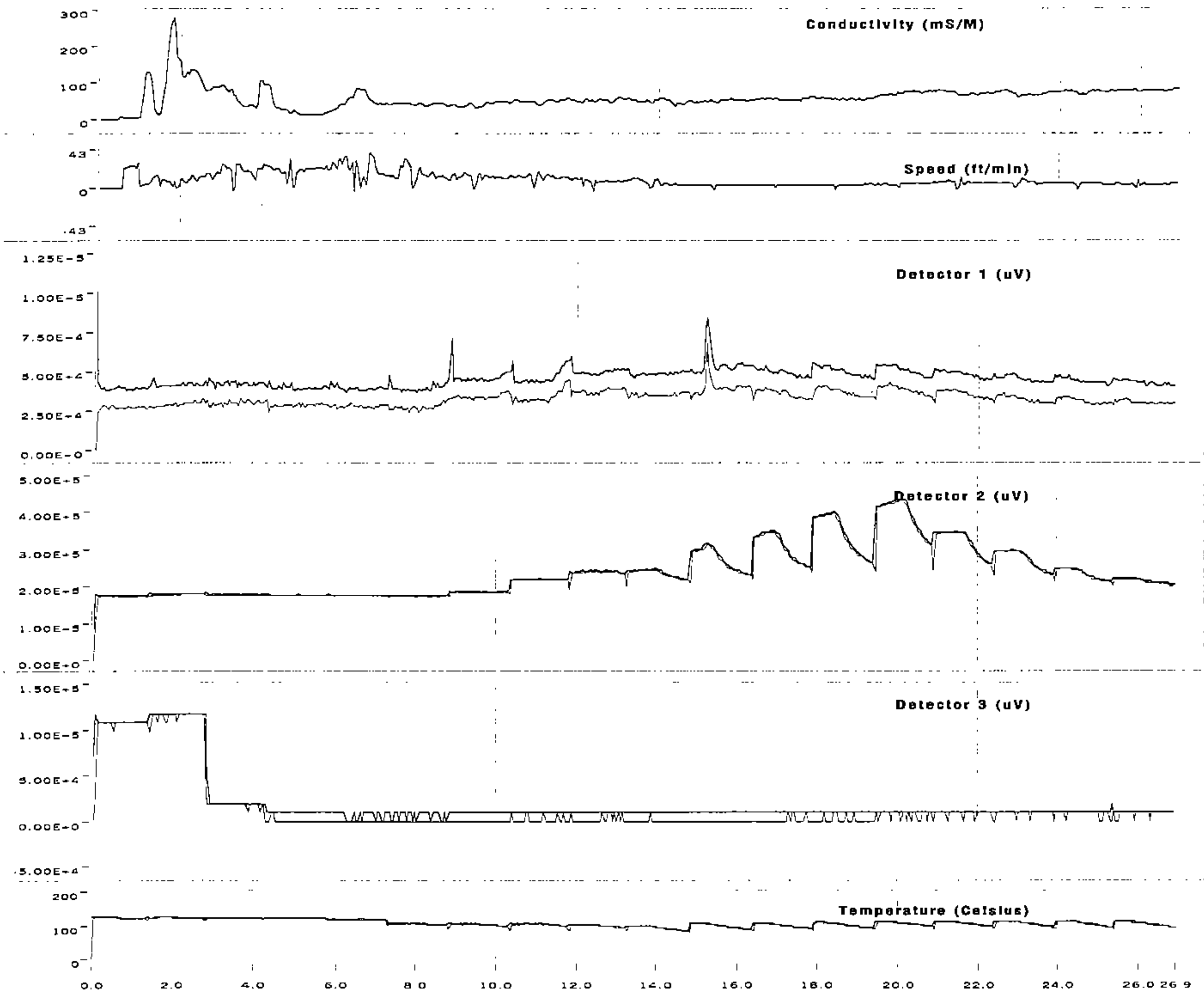
Log: C:\dlrlm95\LOGFILES\Omcmp023.dat



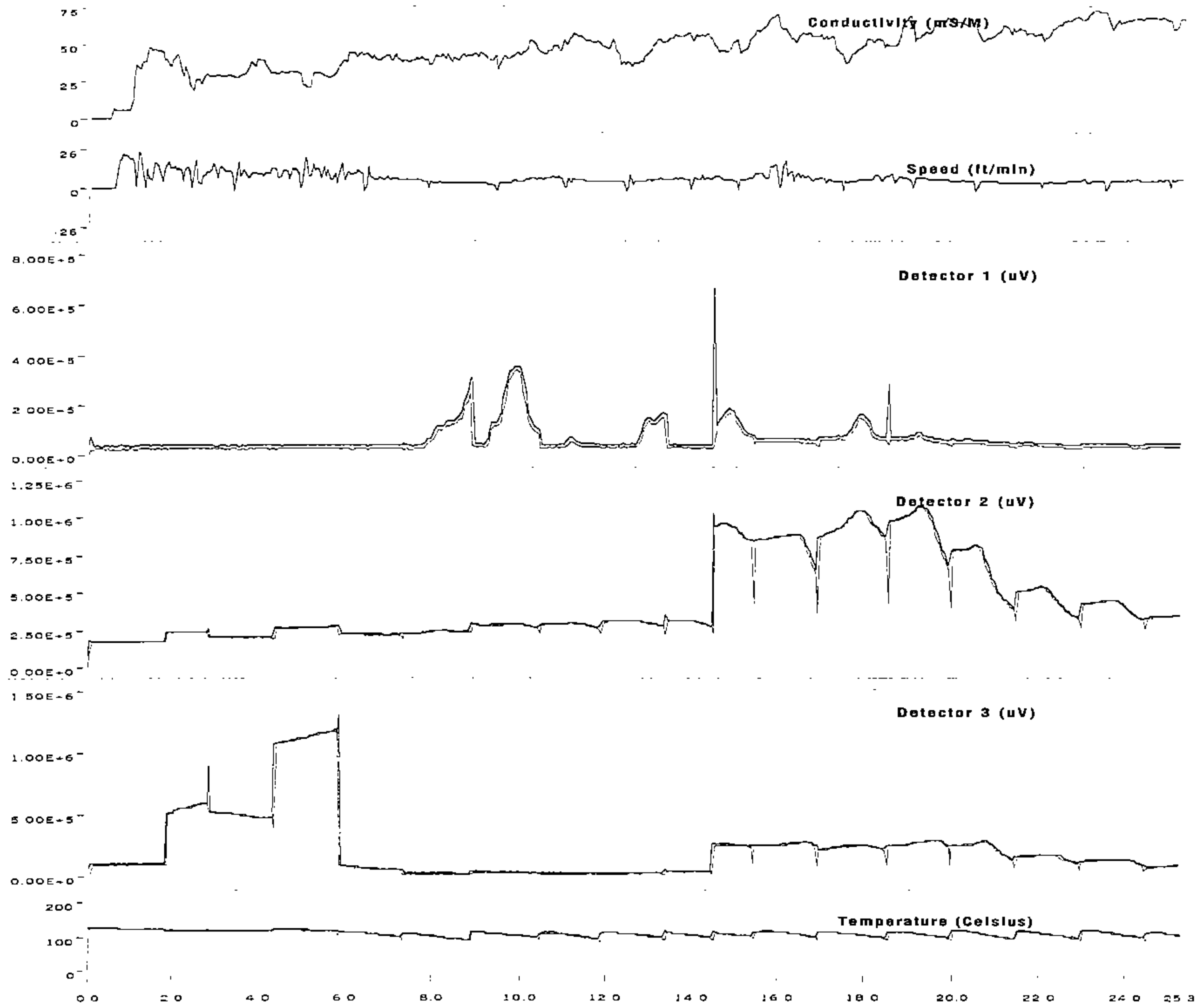
Log: C:\dirim95\LOGFILES\Omcmp024.dat



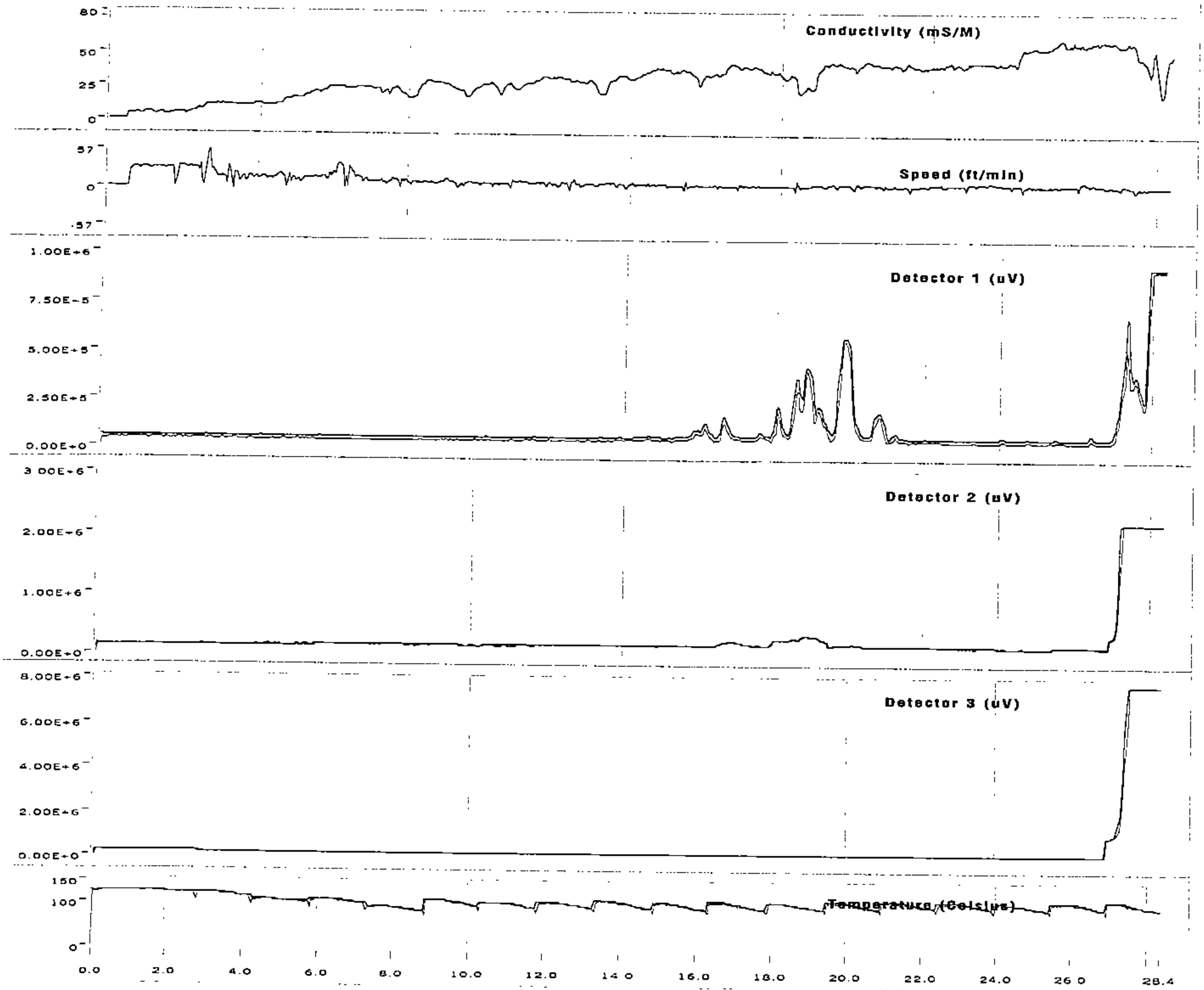
Log: C:\dirim95\LOGFILES\0mcmp025.dat



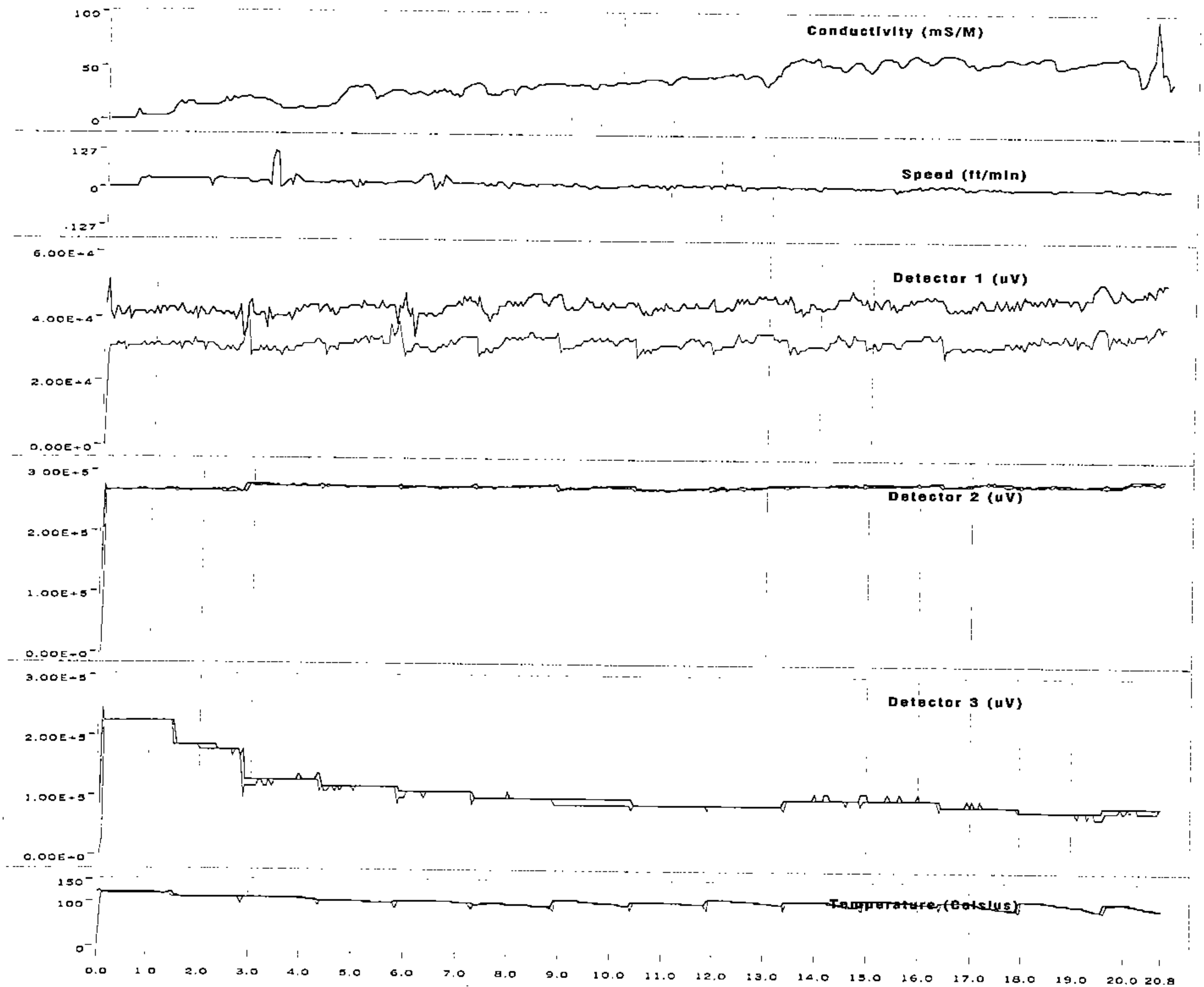
Log: C:\dirim95\LOGFILES\Omcmp026.dat

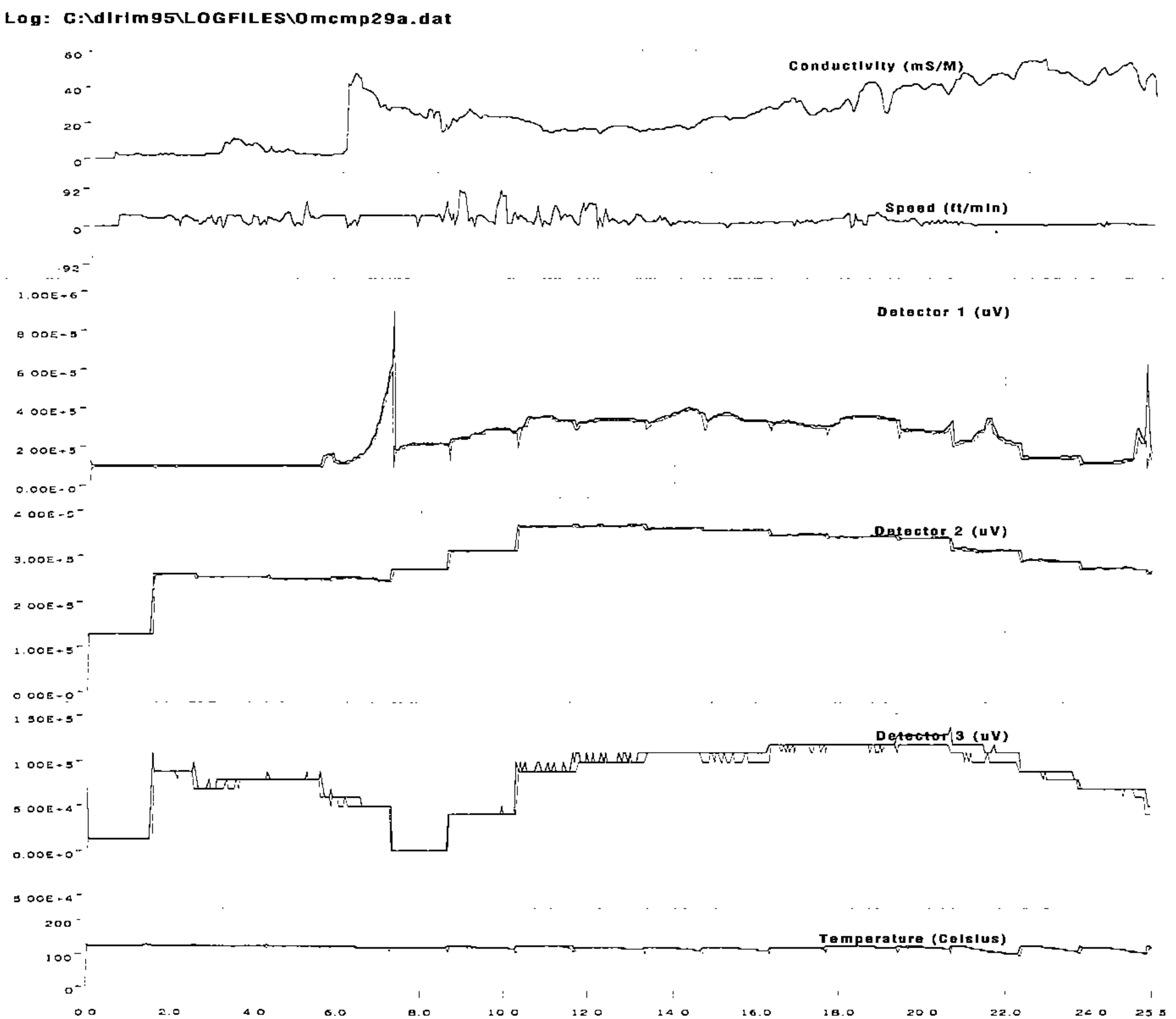


Log: C:\dirlm95\LOGFILES\0mcmp027.dat



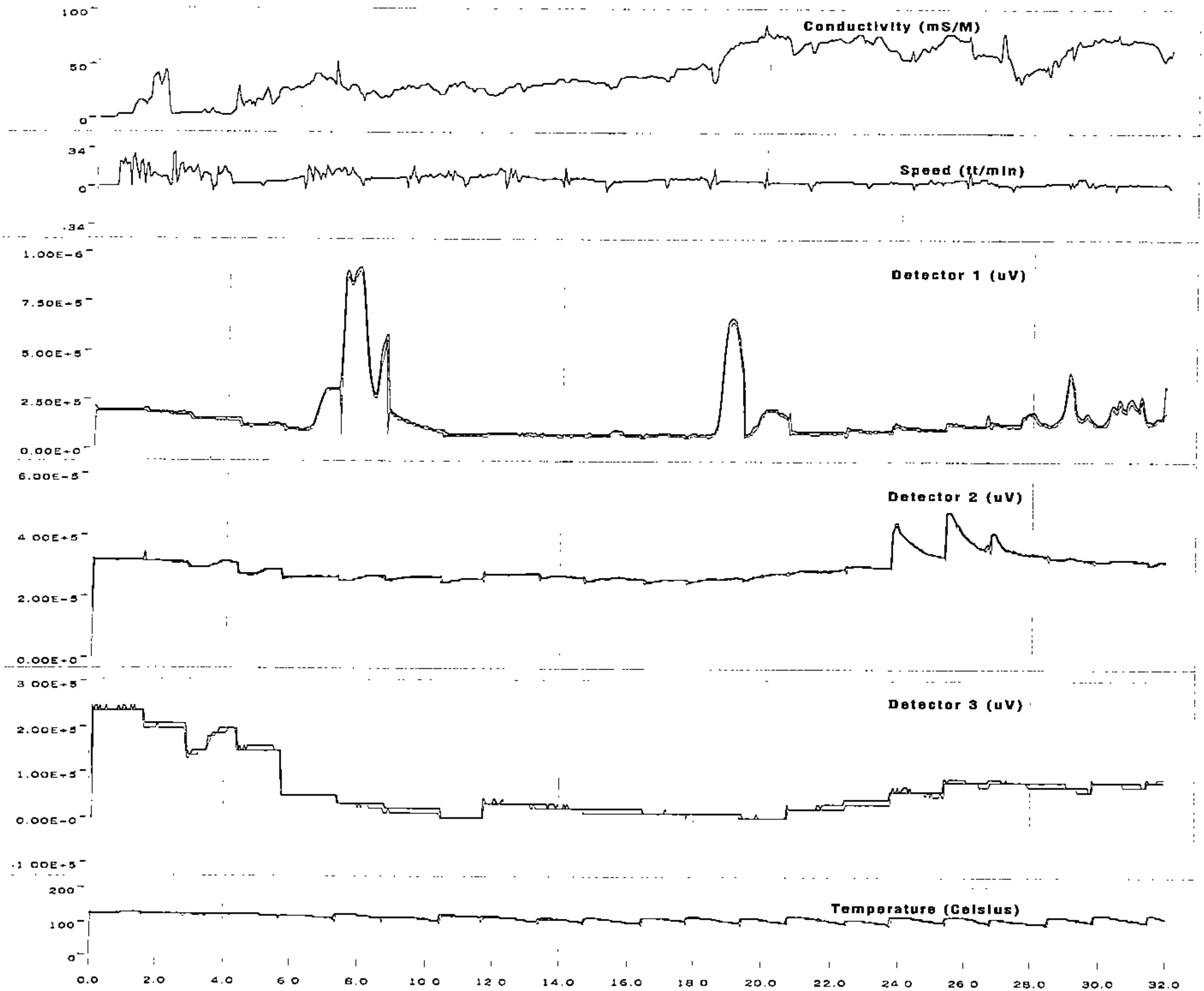
Log: C:\dirlm95\LOGFILES\Omcmp028.dat



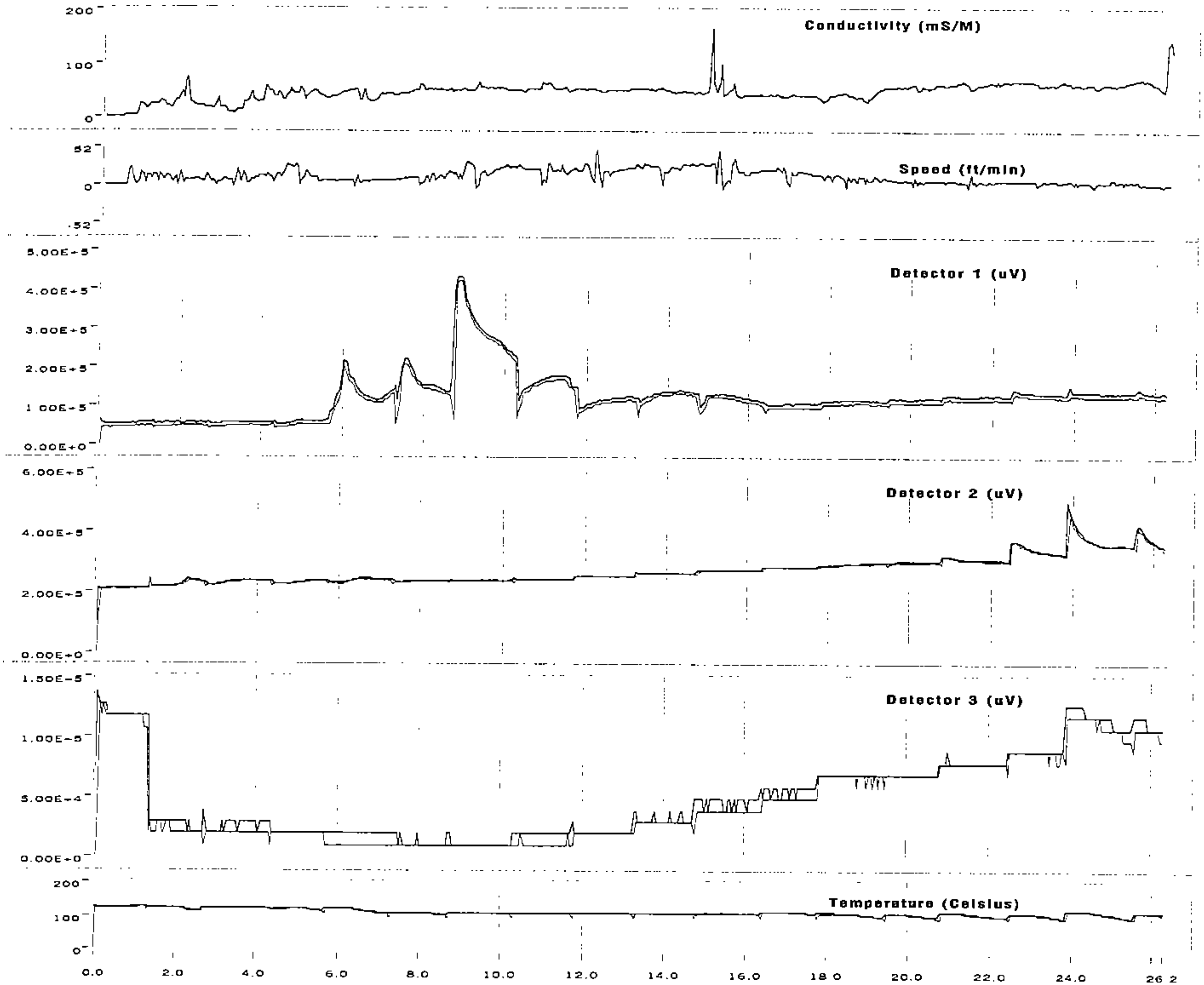


Log: C:\dlrim95\LOGFILES\0mcmp29a.dat
Conductivity (mS/M)
60
40
20
0
Speed (ft/min)
92
0
-92
Detector 1 (uV)
1.00E+6
8.00E+5
6.00E+5
4.00E+5
2.00E+5
0.00E+0
Detector 2 (uV)
4.00E+5
3.00E+5
2.00E+5
1.00E+5
0.00E+0
Detector 3 (uV)
1.50E+5
1.00E+5
5.00E+4
0.00E+0
5.00E+4
Temperature (Celsius)
200
100
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
22.0
24.0
25.5

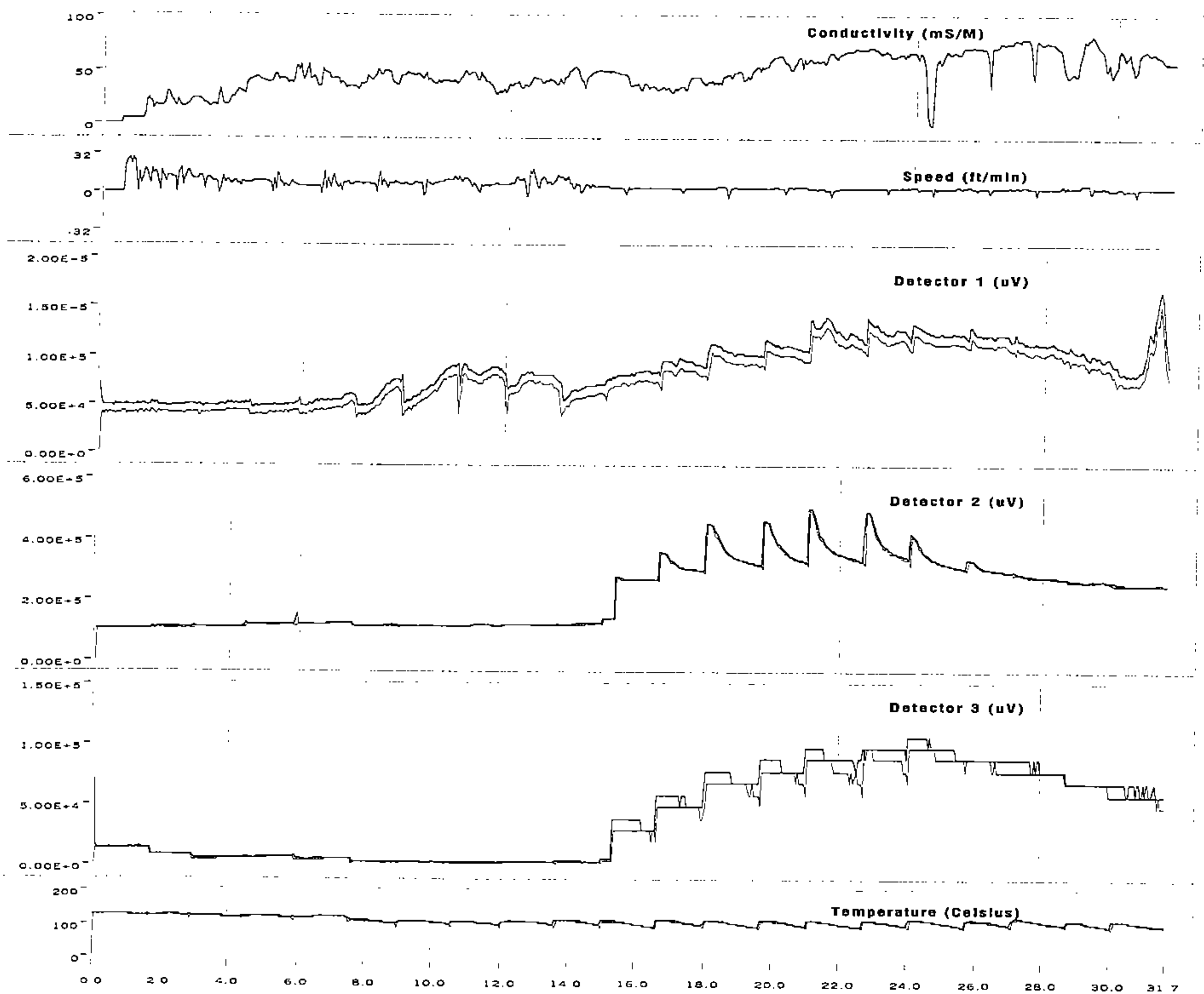
Log: C:\drlm95\LOGFILES\Omcmp030.dat



Log: C:\dlrlm95\LOGFILES\Omcmp031.dat



Log: C:\dlrlm95\LOGFILES\Omcmp032.dat



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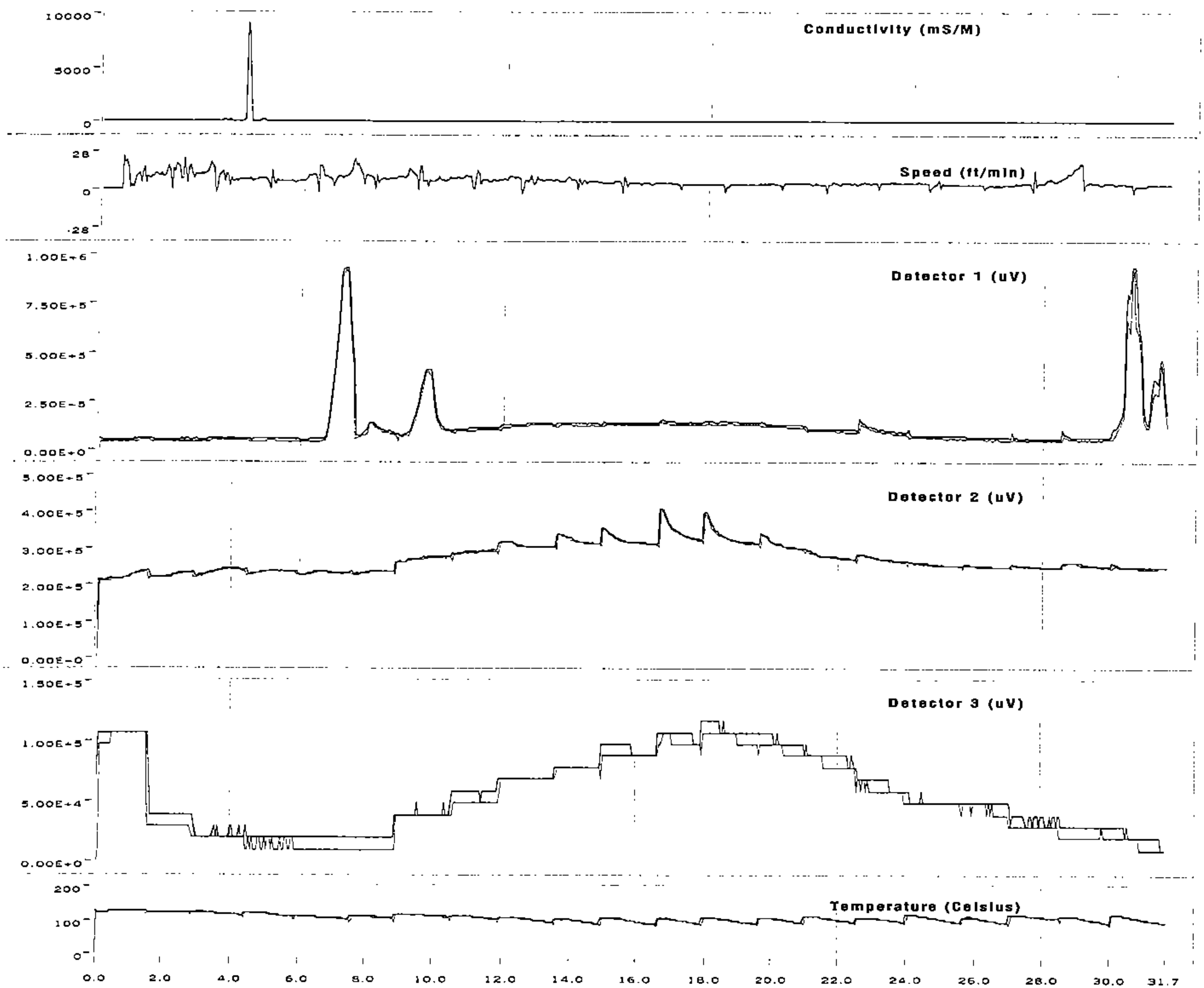

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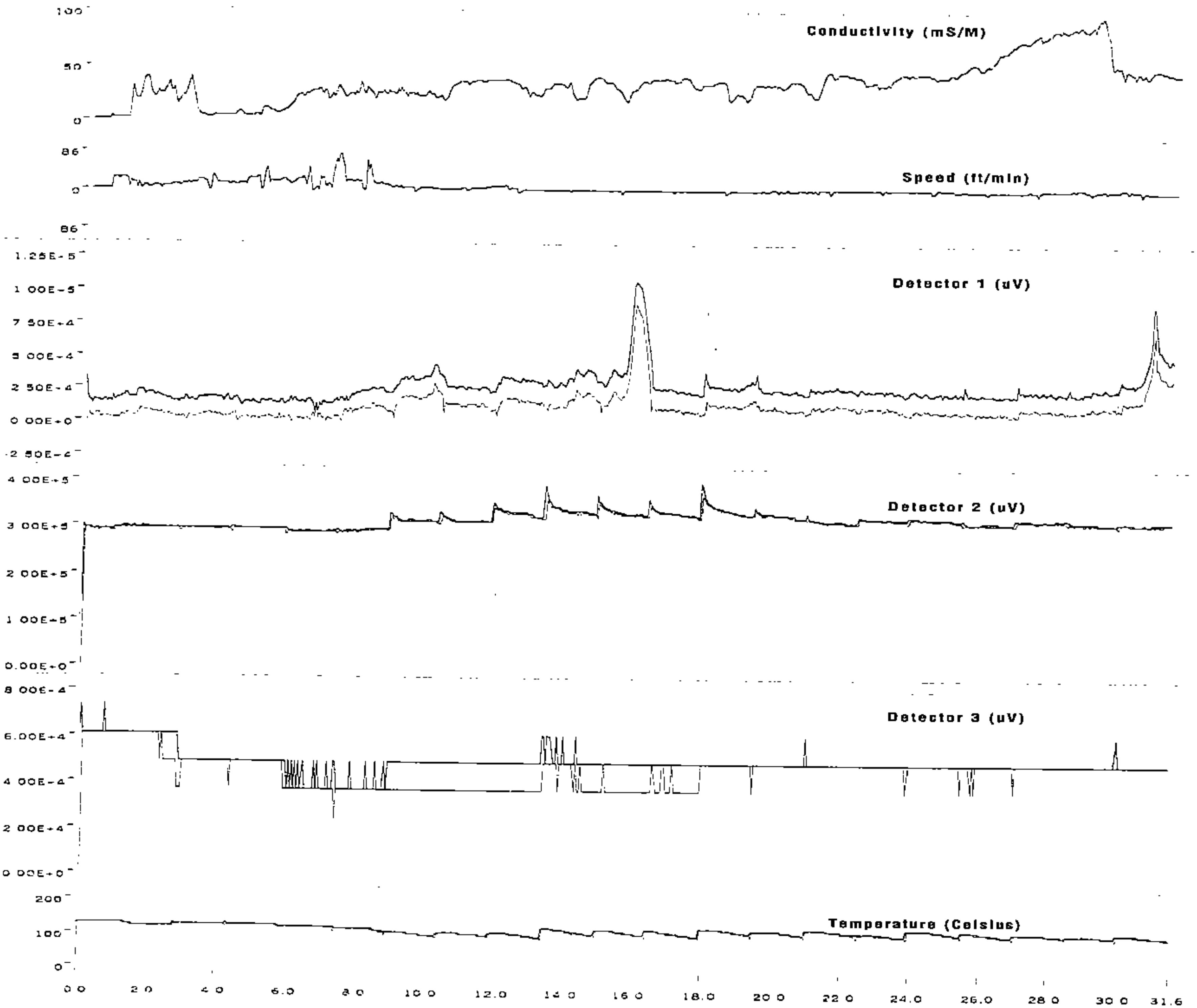
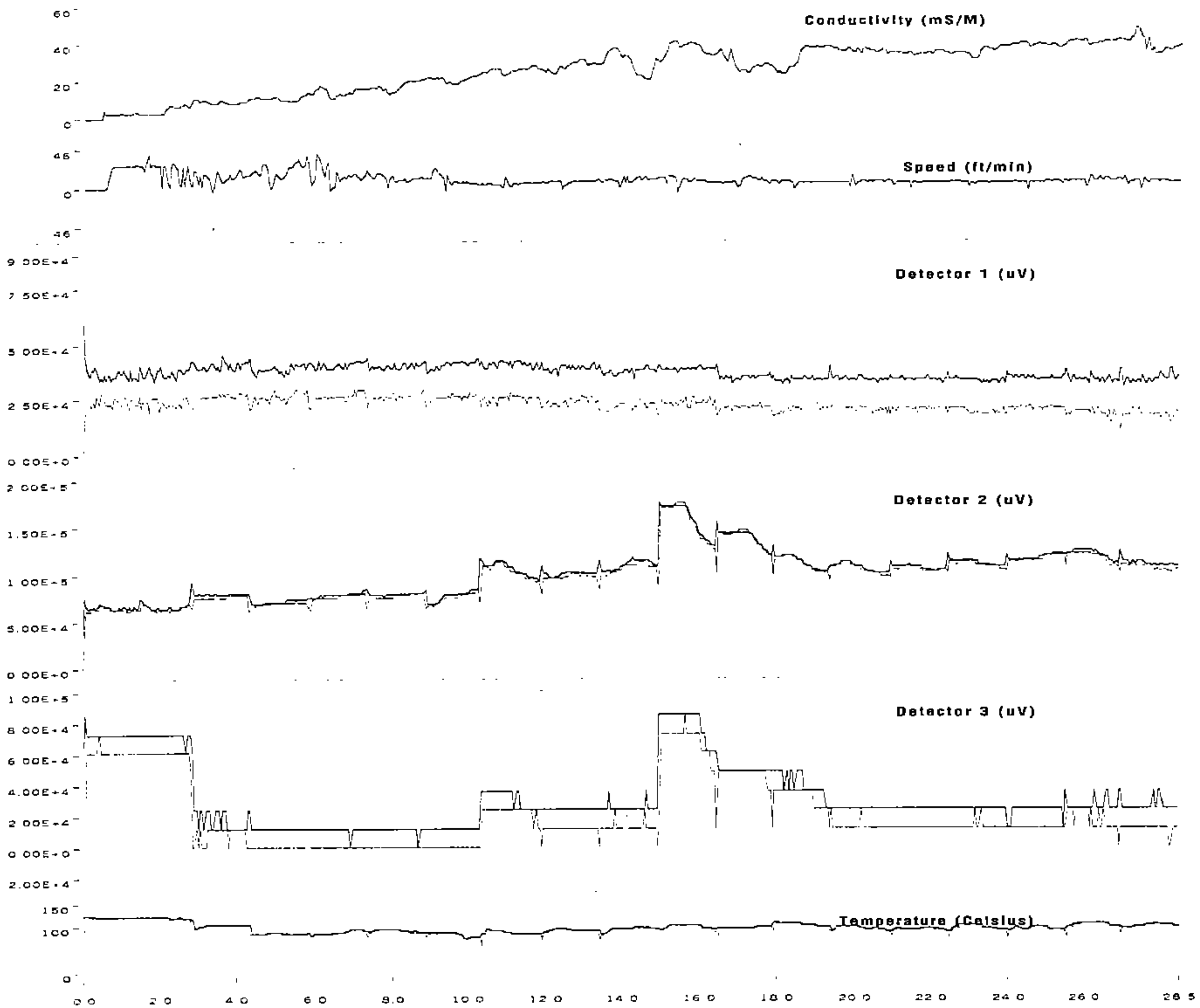
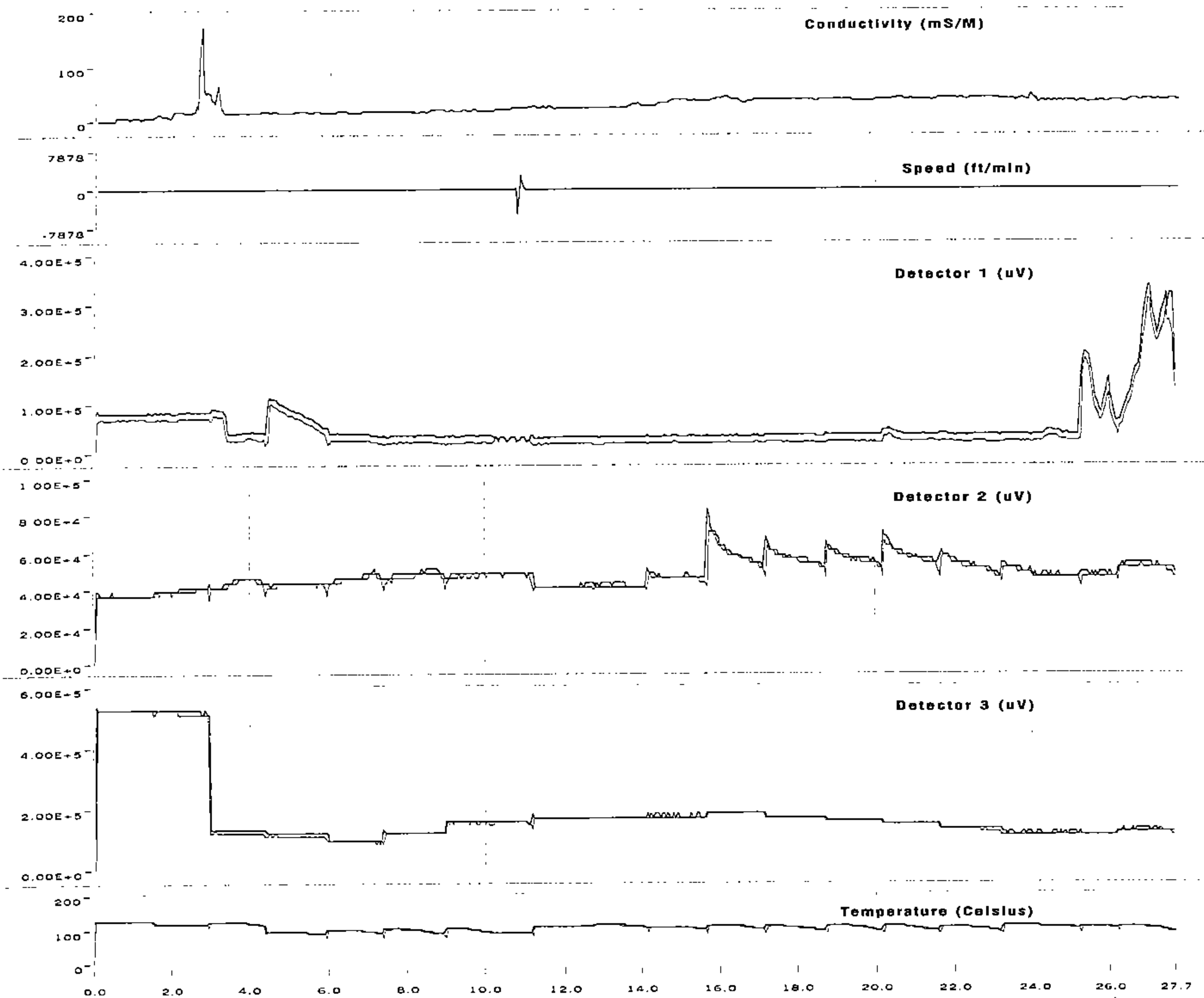


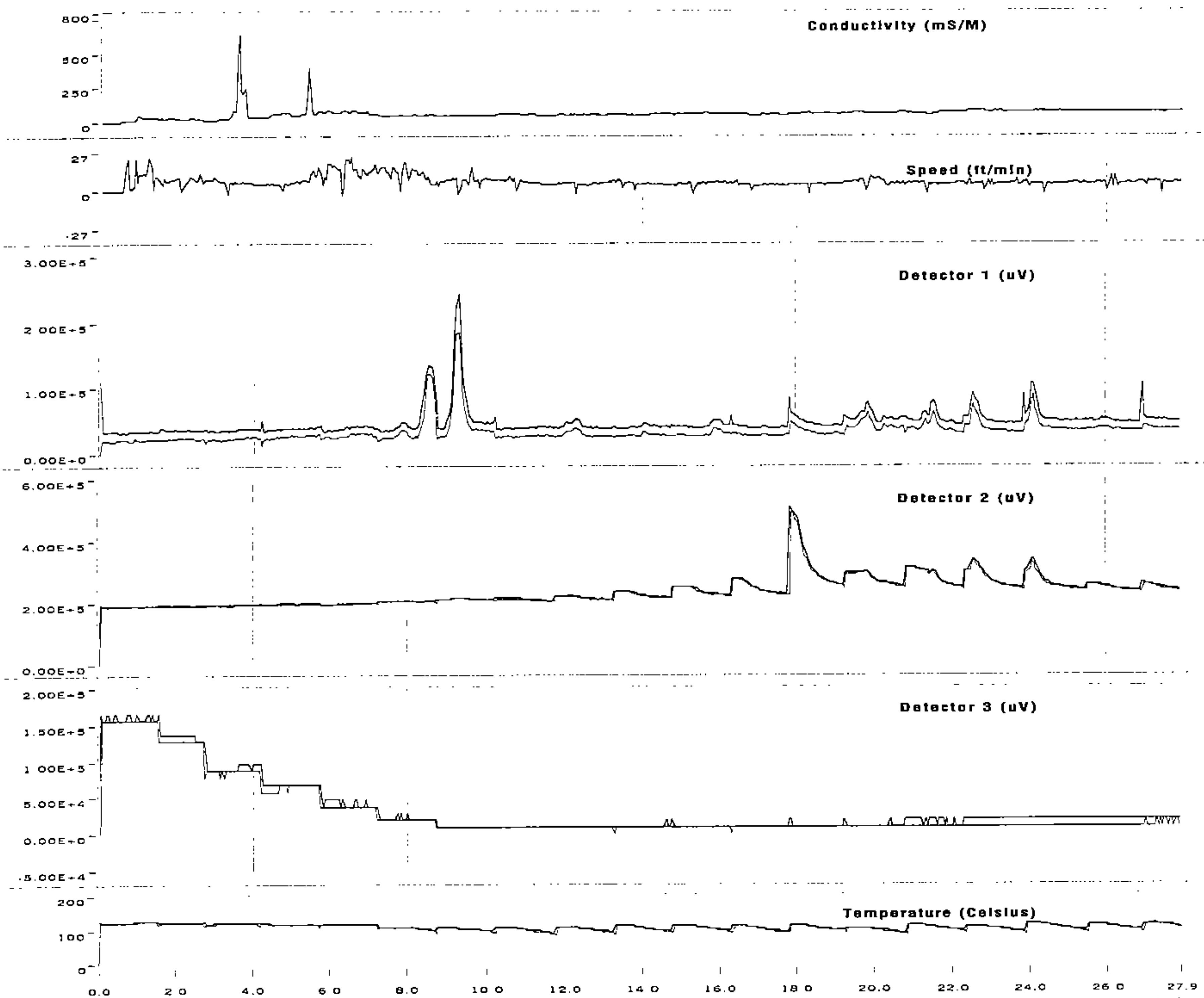
Log: C:\dirlm95\LOGFILES\Omcmp035.dat



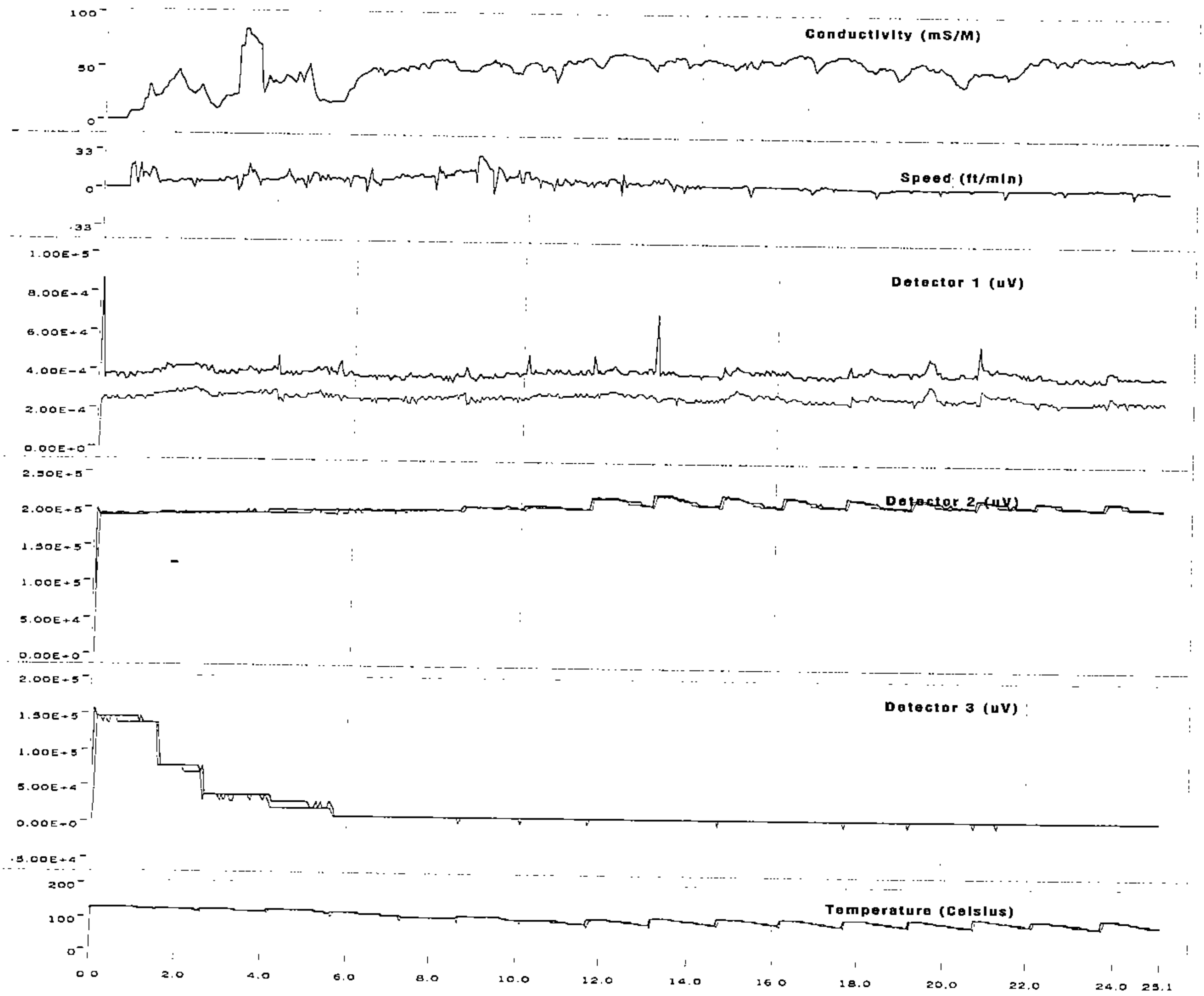
Log: C:\dlrim95\LOGFILES\Omcmp36a.dat



Log: C:\dlrim95\LOGFILES\Omcmp037.dat



Log: C:\dirlm95\LOGFILES\Omcmp038.dat



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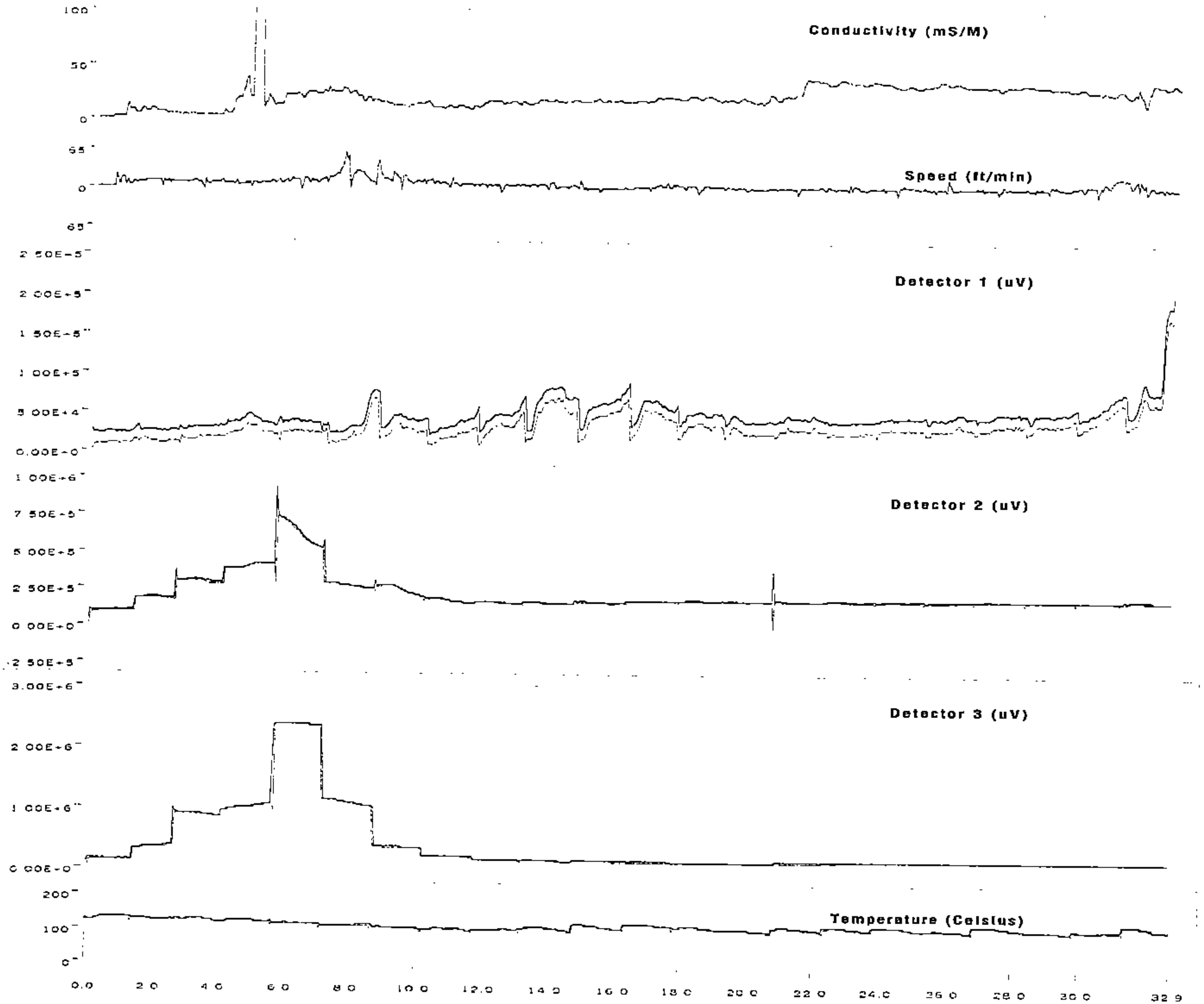
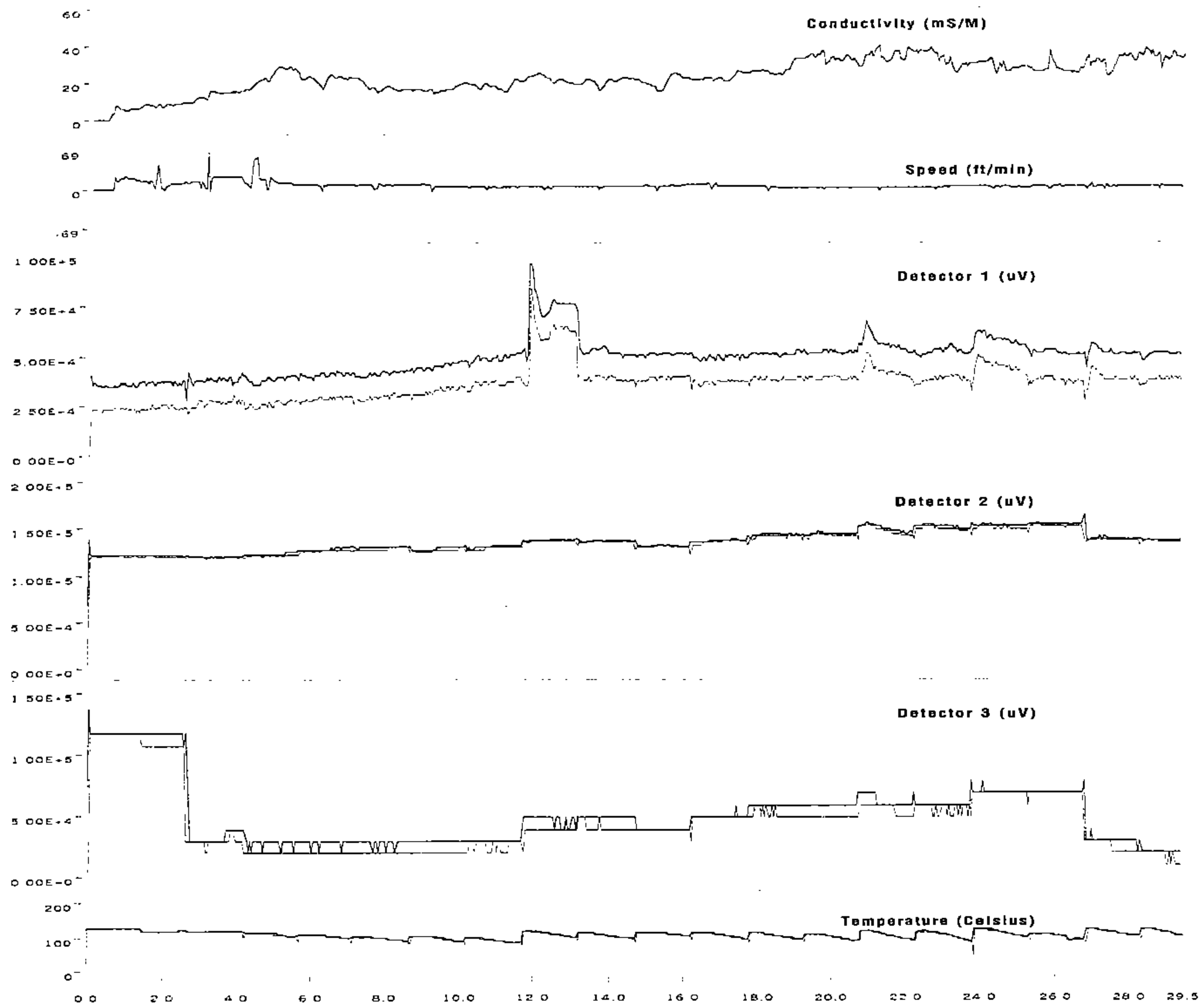
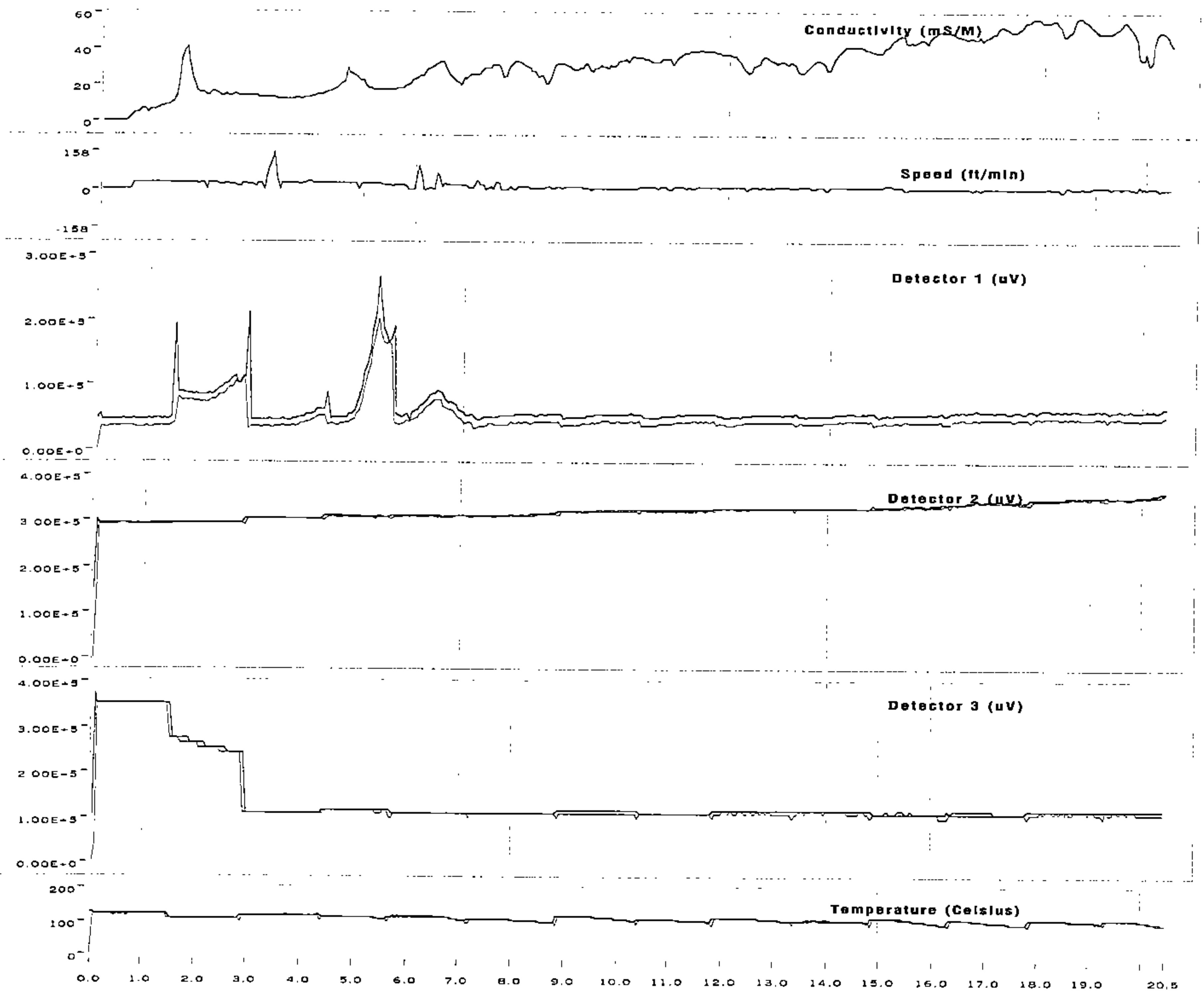


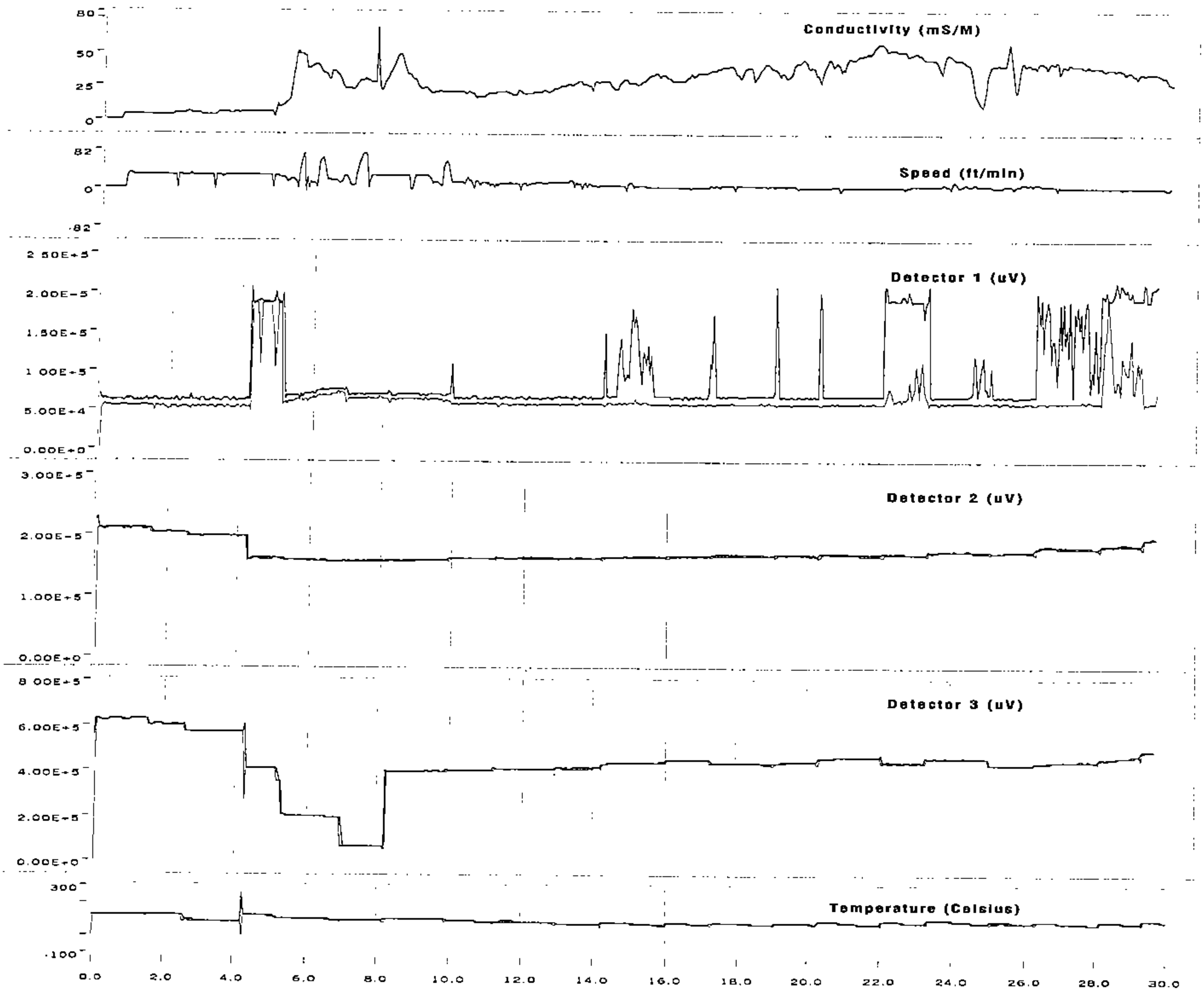
Log: C:\dlrim95\LOGFILES\0mcmp040.dat



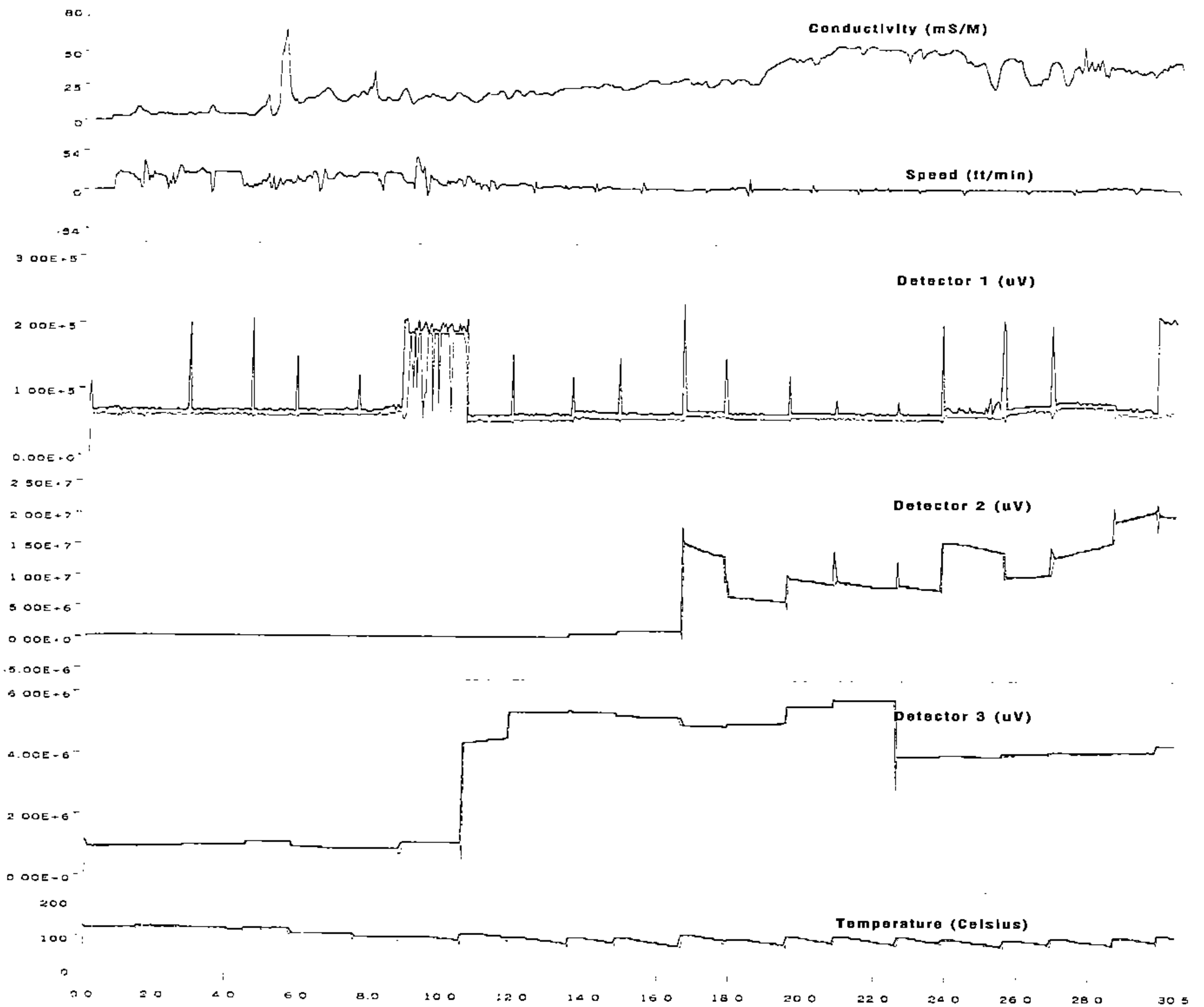
Log: C:\dlrlm95\LOGFILES\Omcmp41b.dat



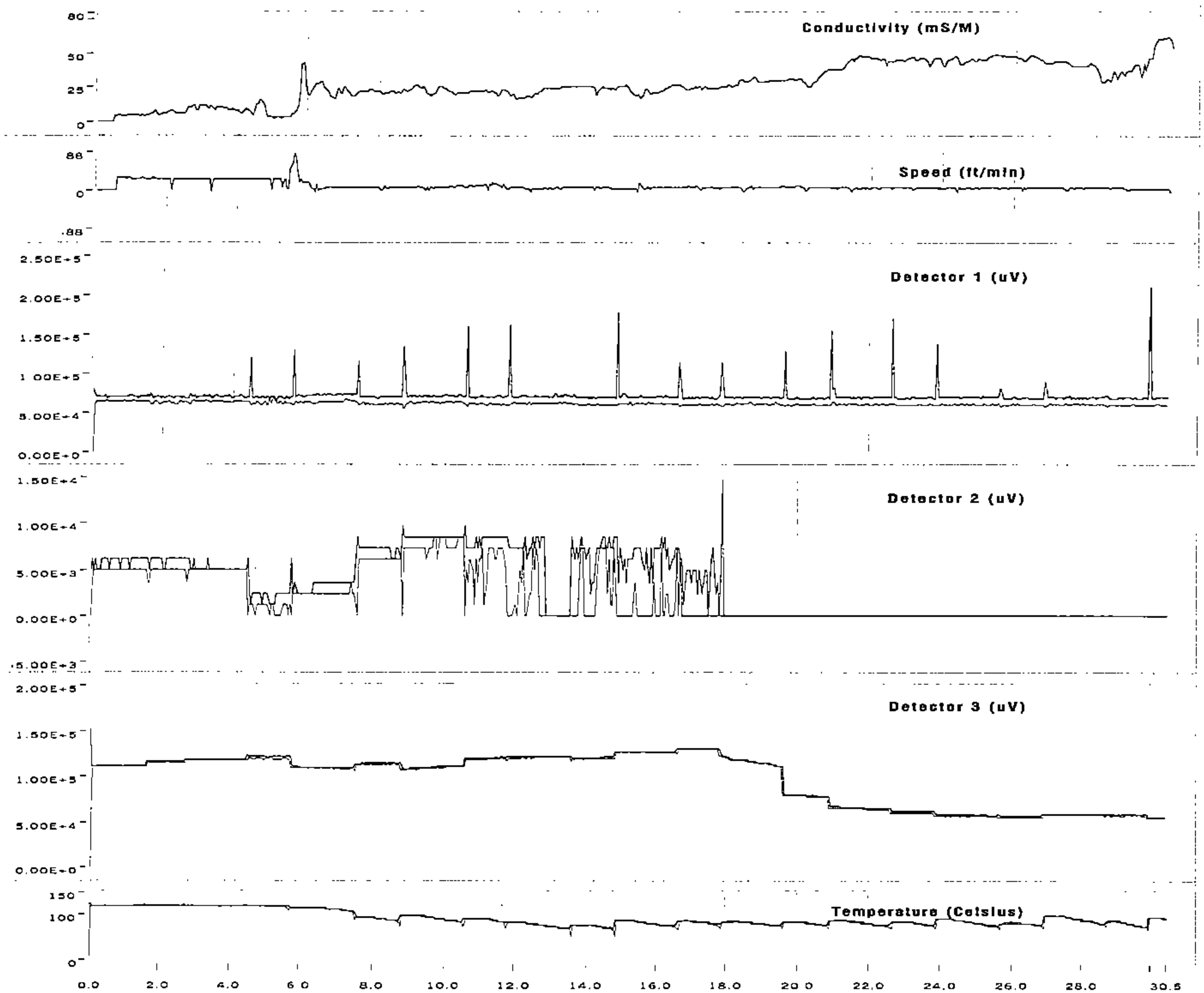
Log: C:\dlrlm95\LOGFILES\Omcm042a.dat



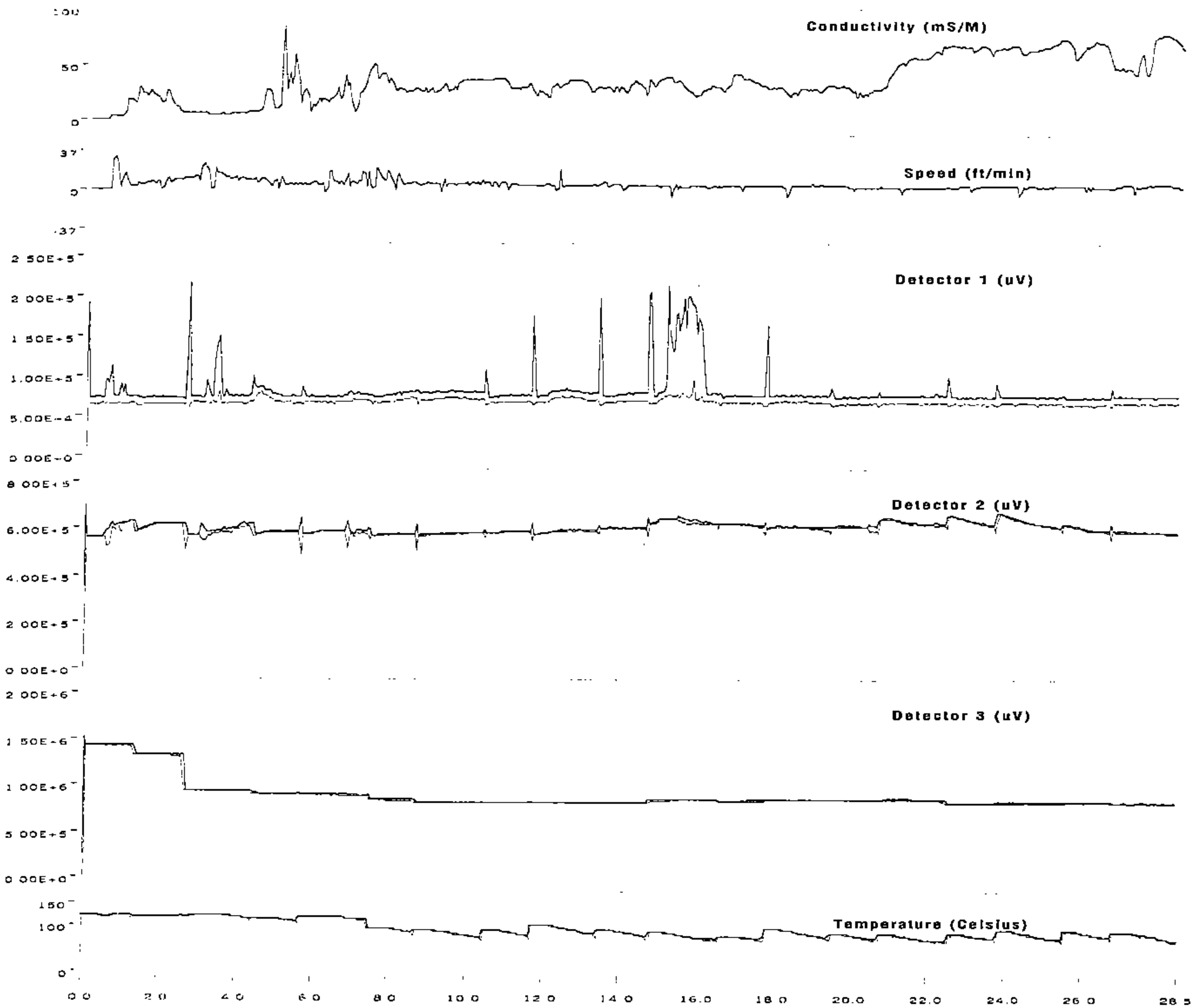
Log: C:\dlrim95\LOGFILES\Omcmp43.dat



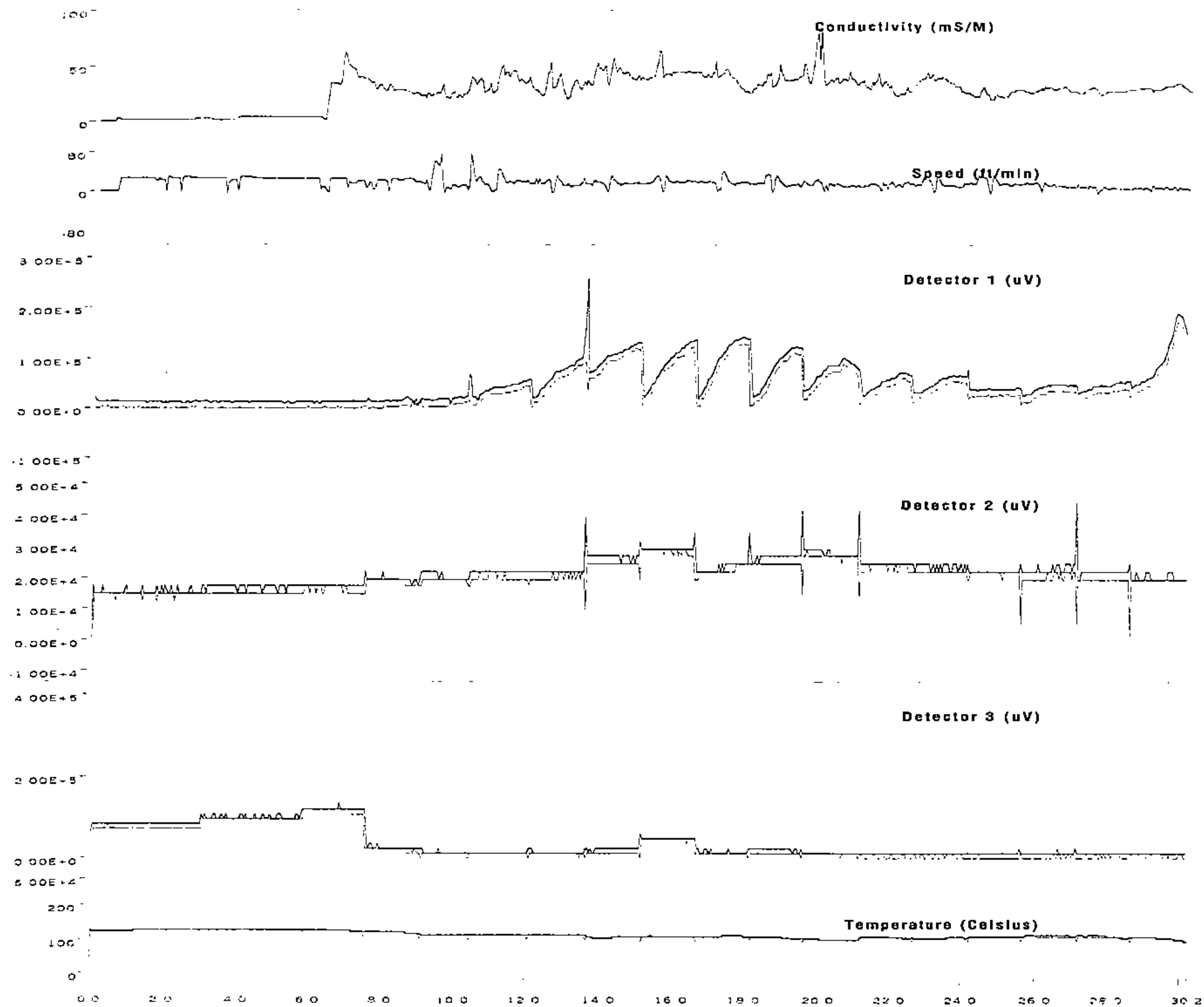
Log: C:\dirlm95\LOGFILES\Omcmp44a.dat



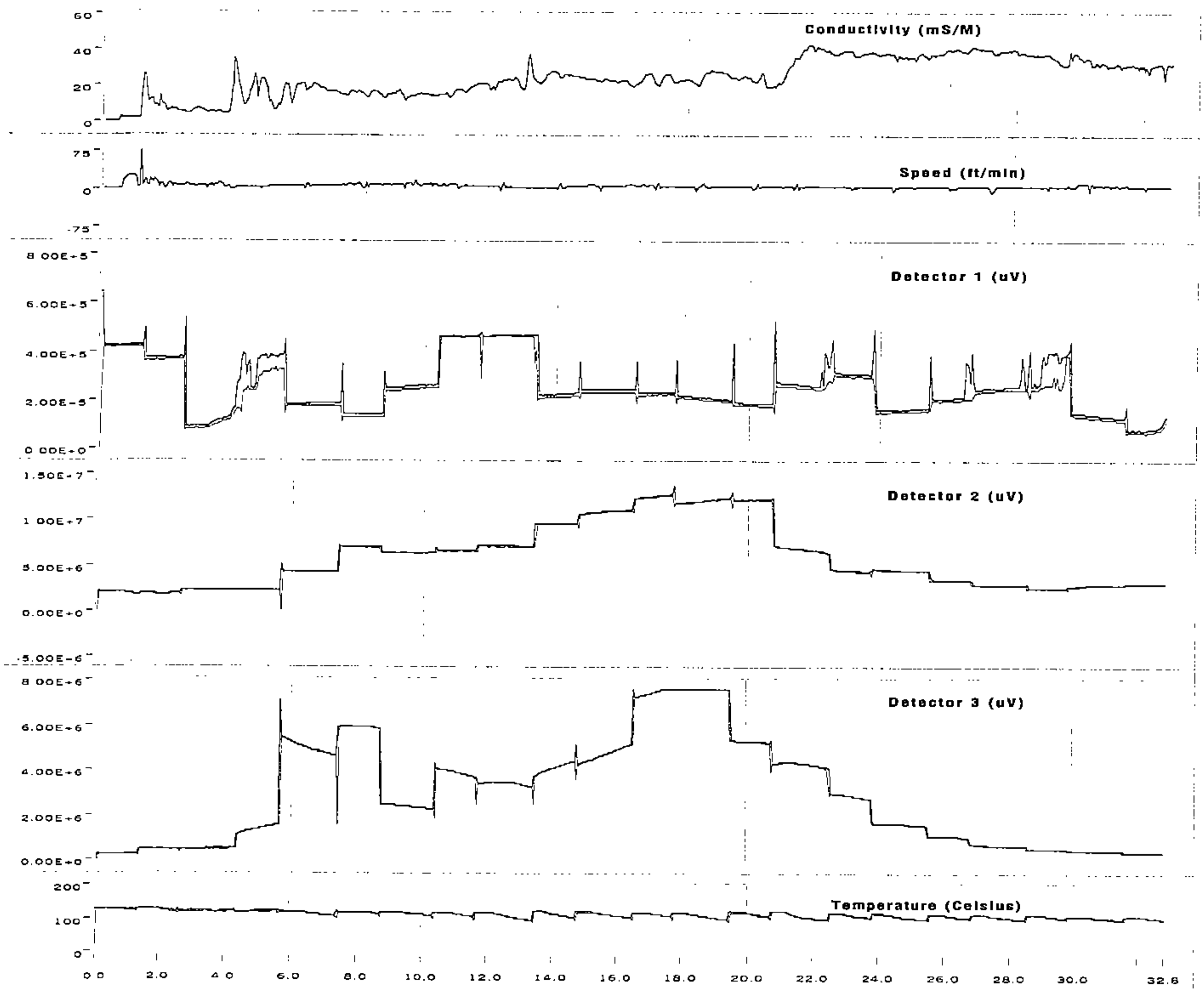
Log: C:\dlrlm95\LOGFILES\Omcmp45a.dat



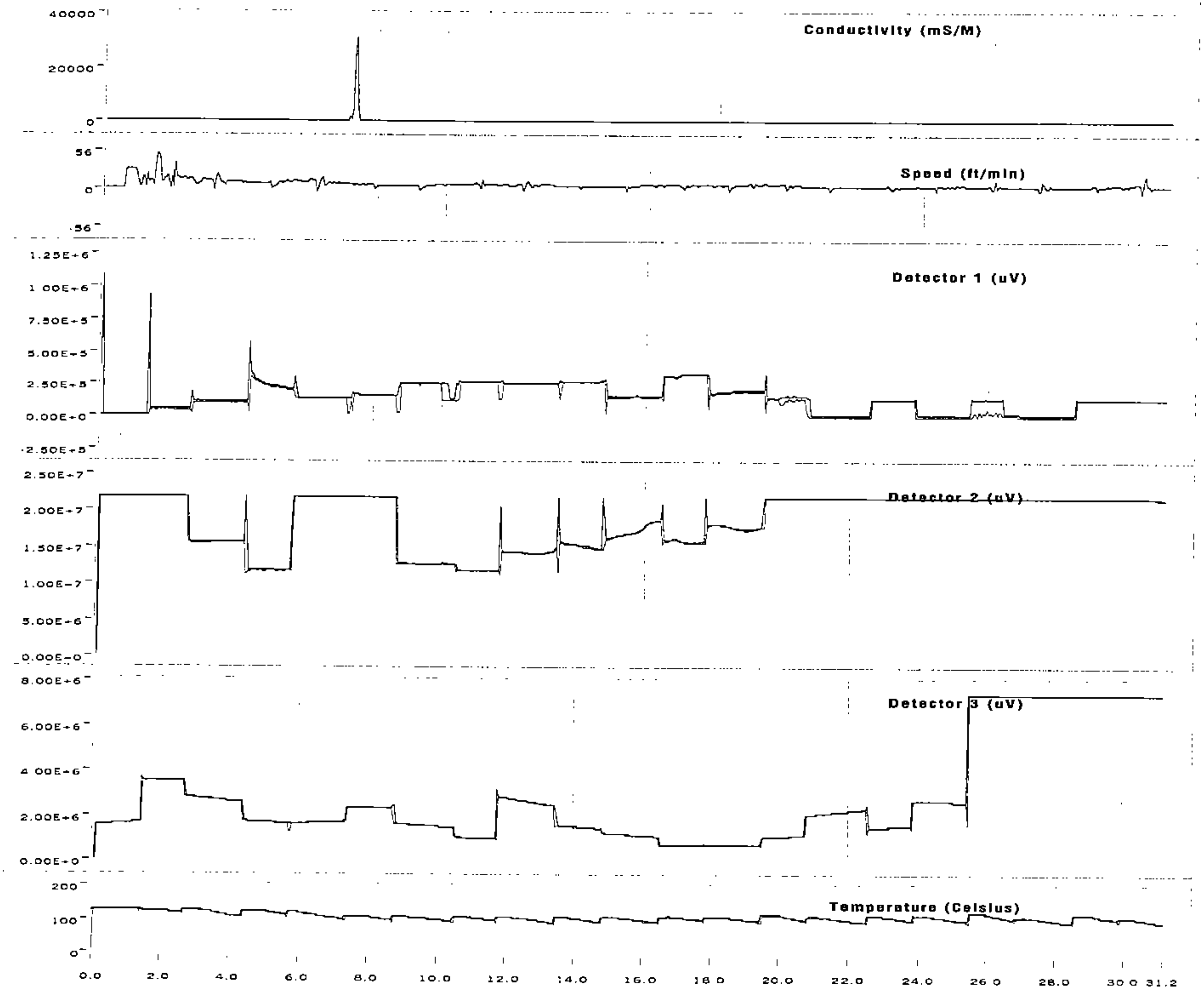
Log: C:\dirlm95\LOGFILES\Omcmp46r.dat



Log: C:\dirlm95\LOGFILES\Omcmp047.dat



Log: C:\dirlm95\LOGFILES\Omcmp048.dat



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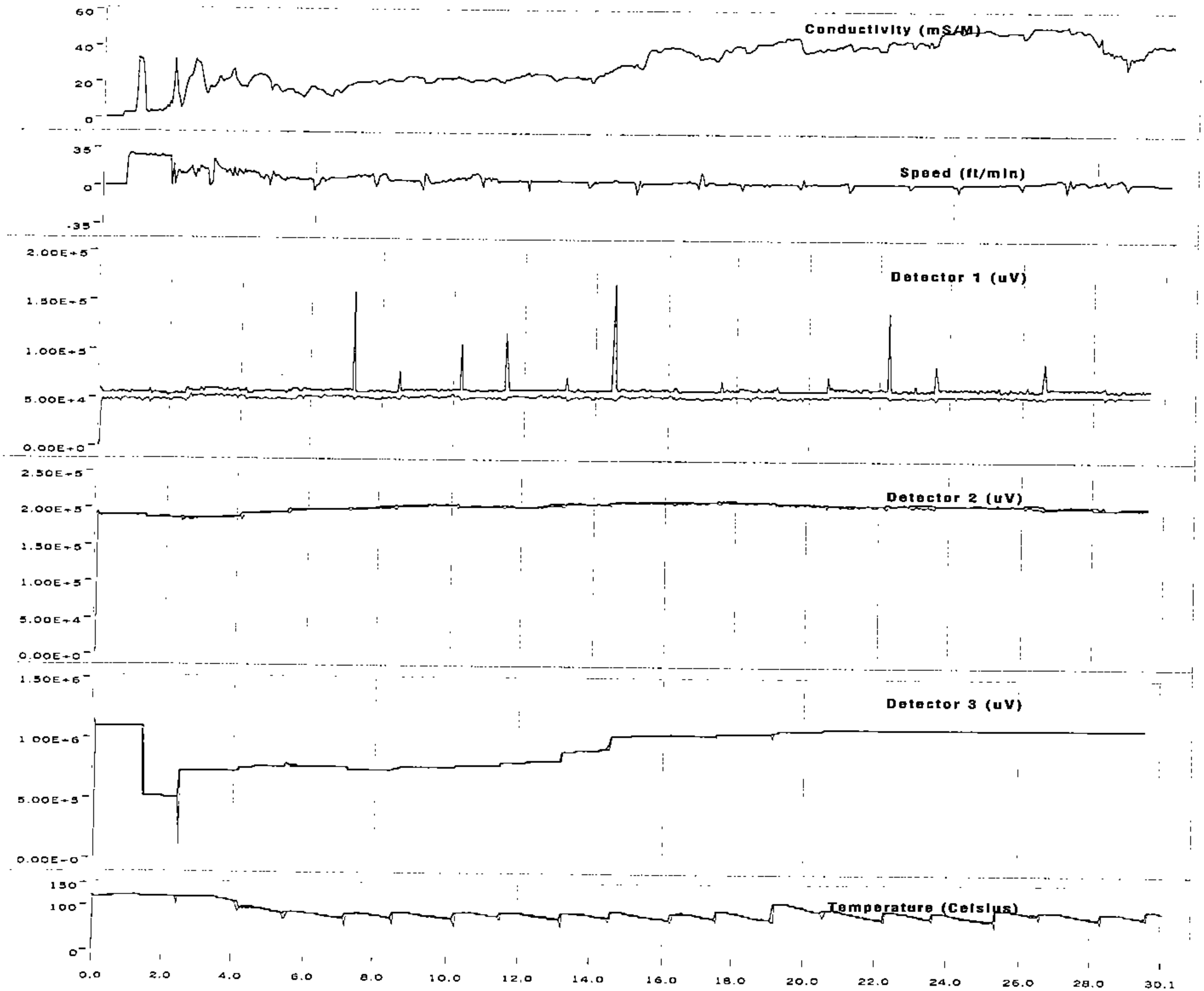

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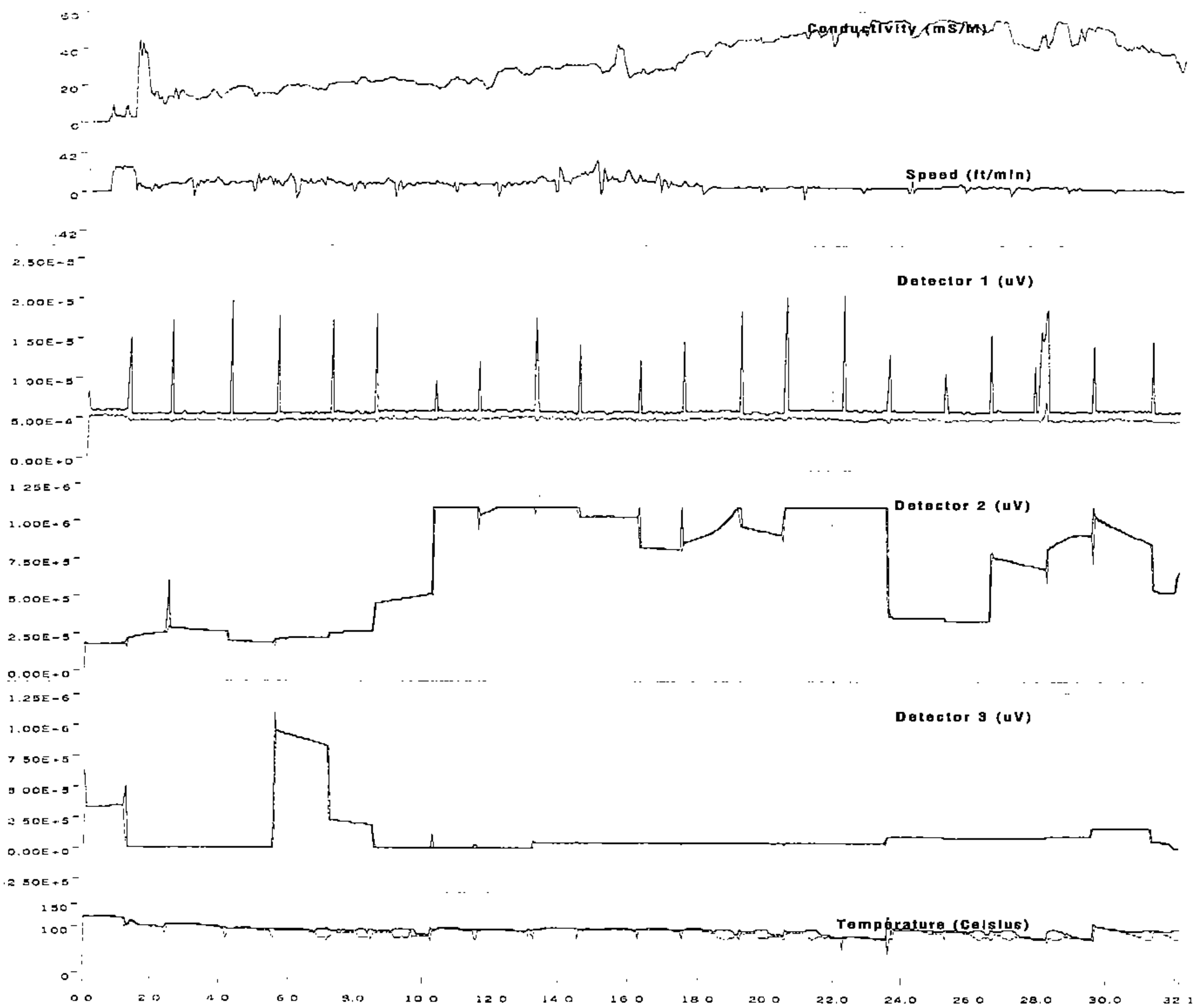

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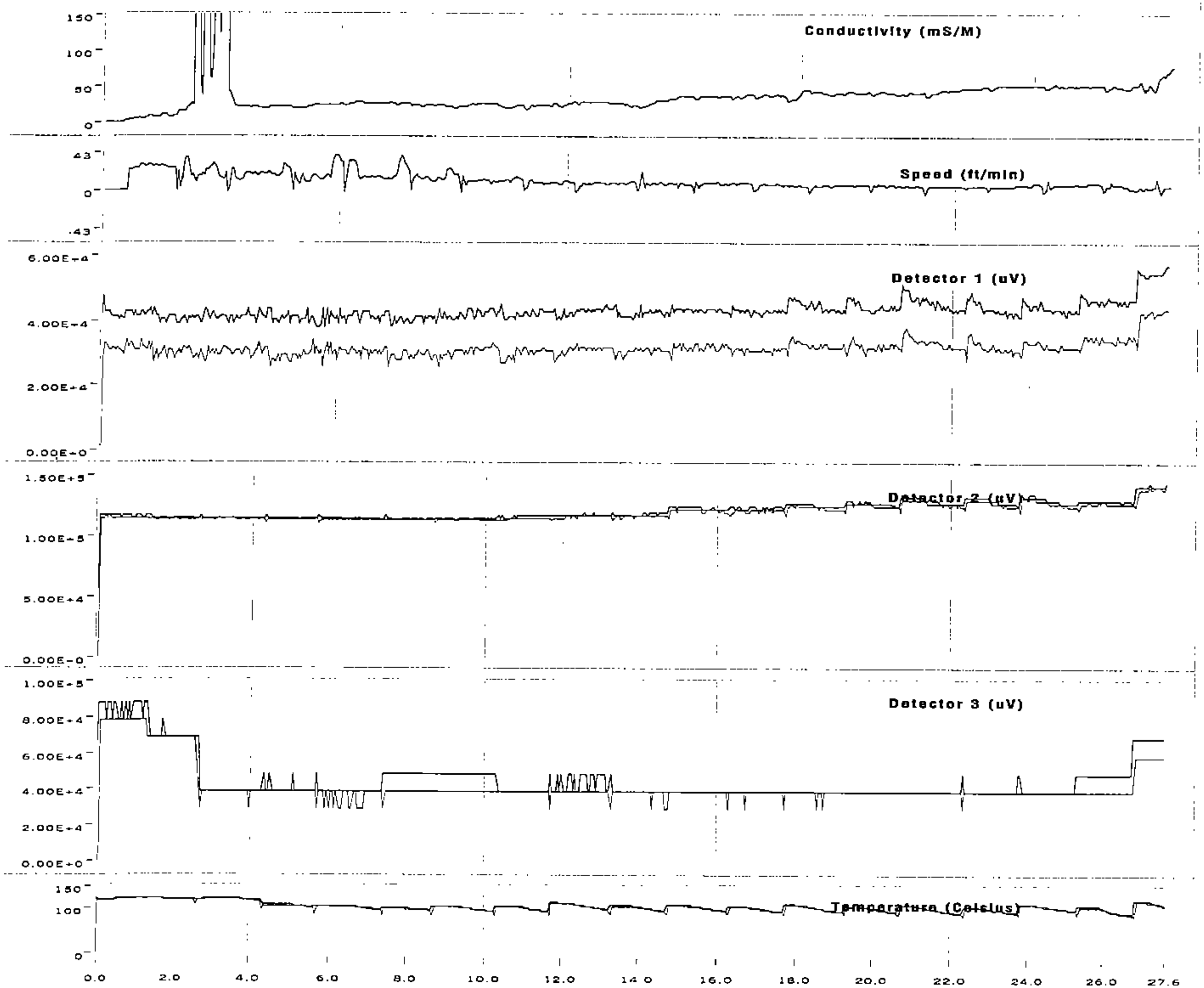

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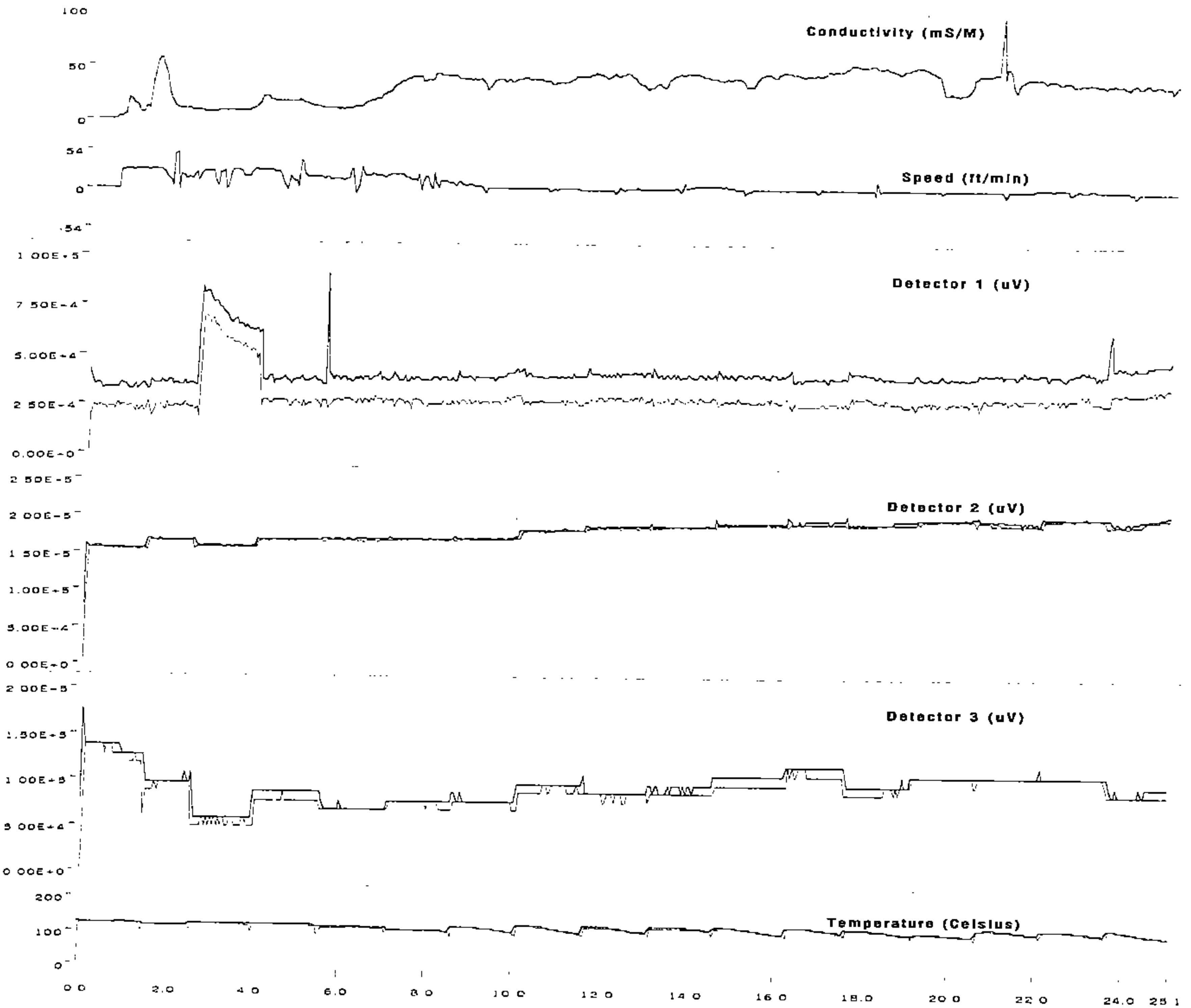

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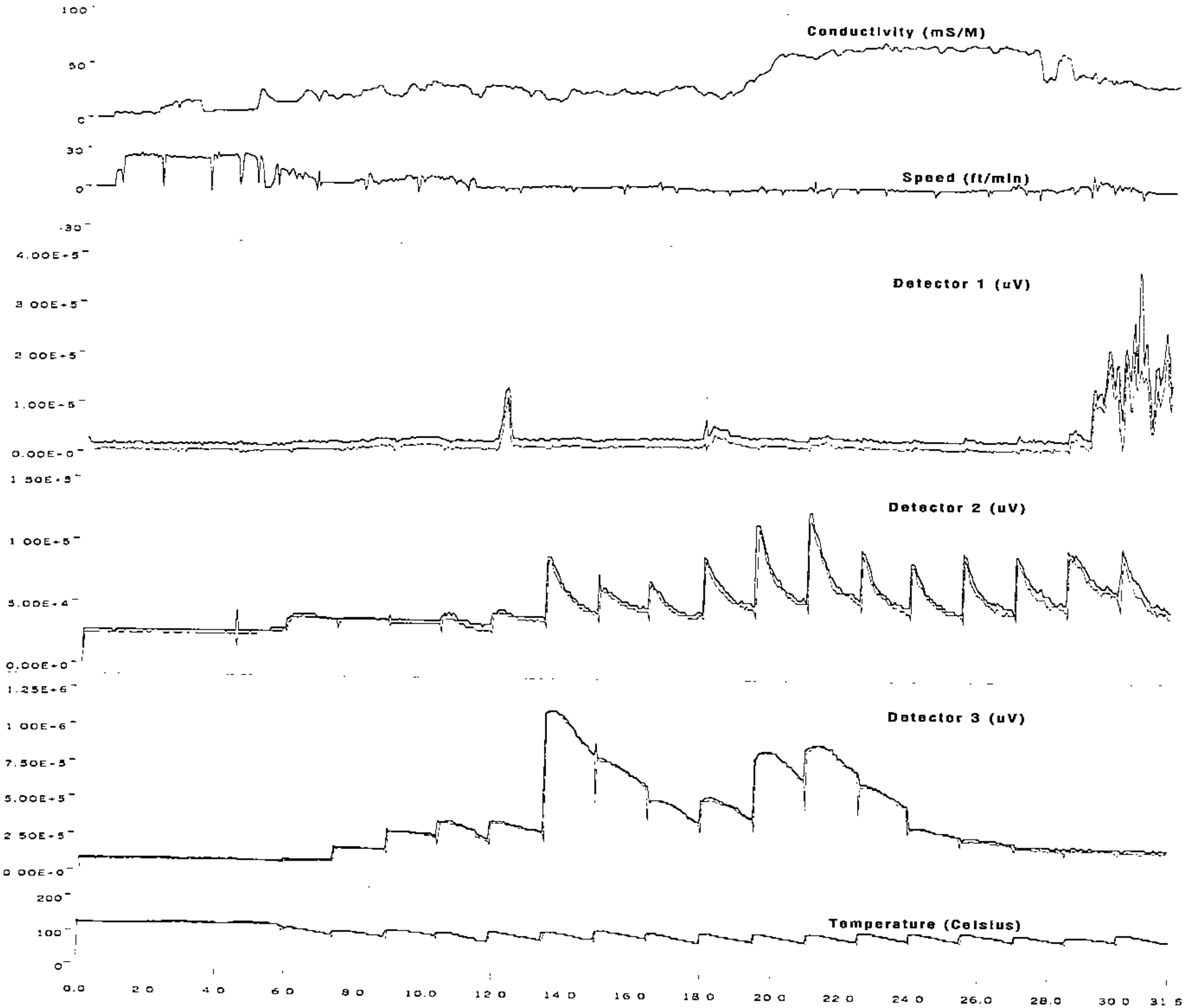

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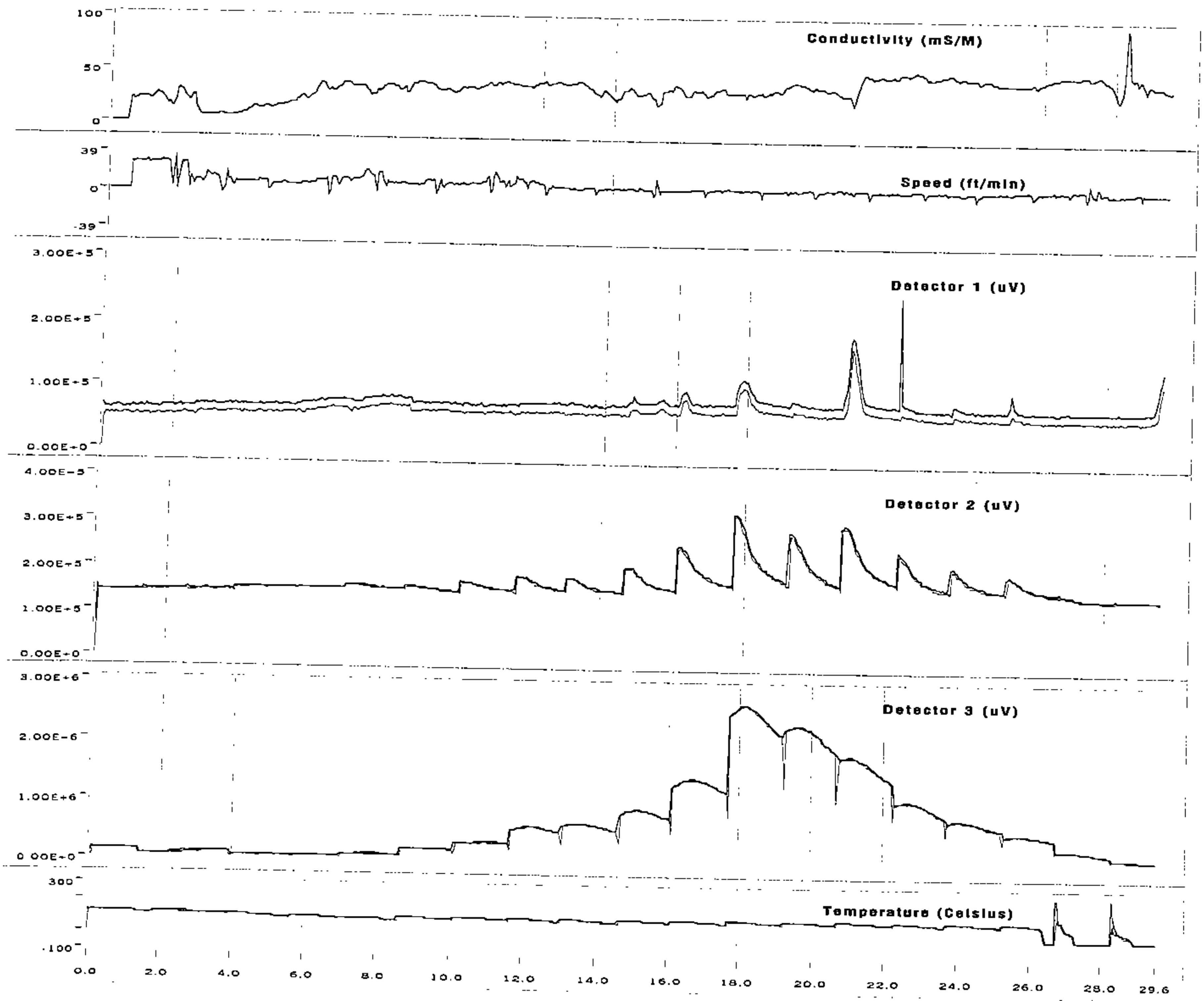
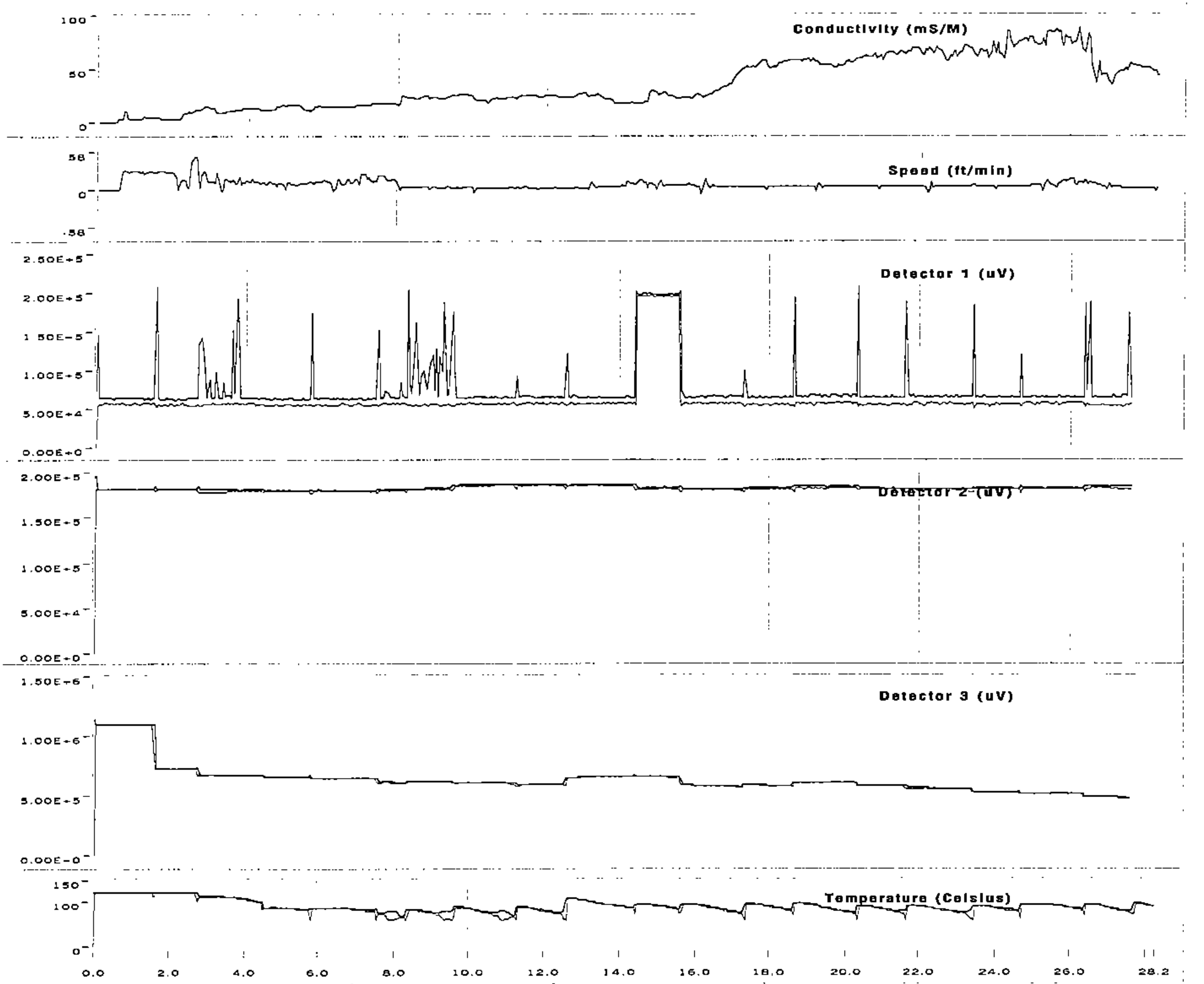


Log: C:\dlrim95\LOGFILES\Omcmp055.dat



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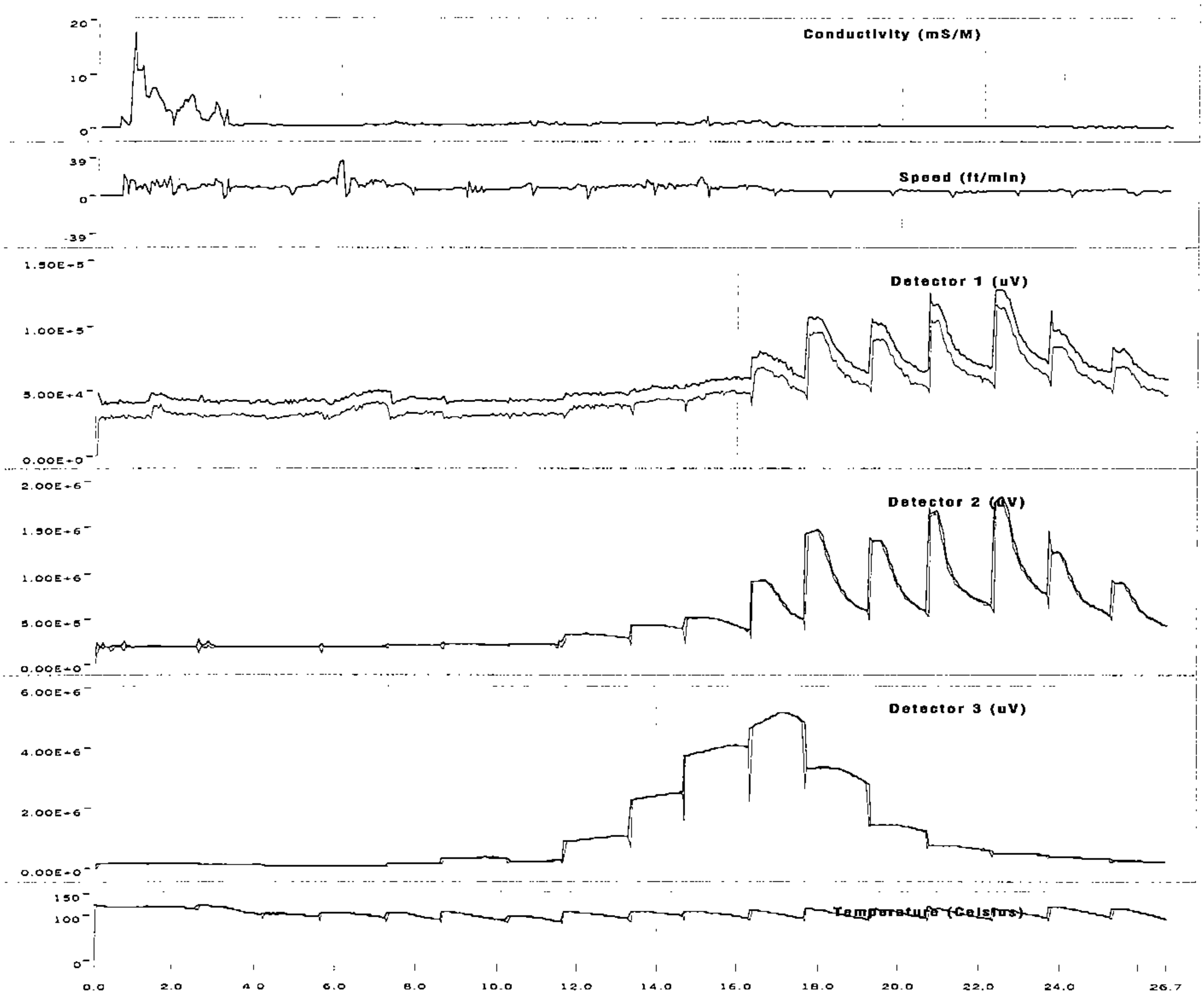

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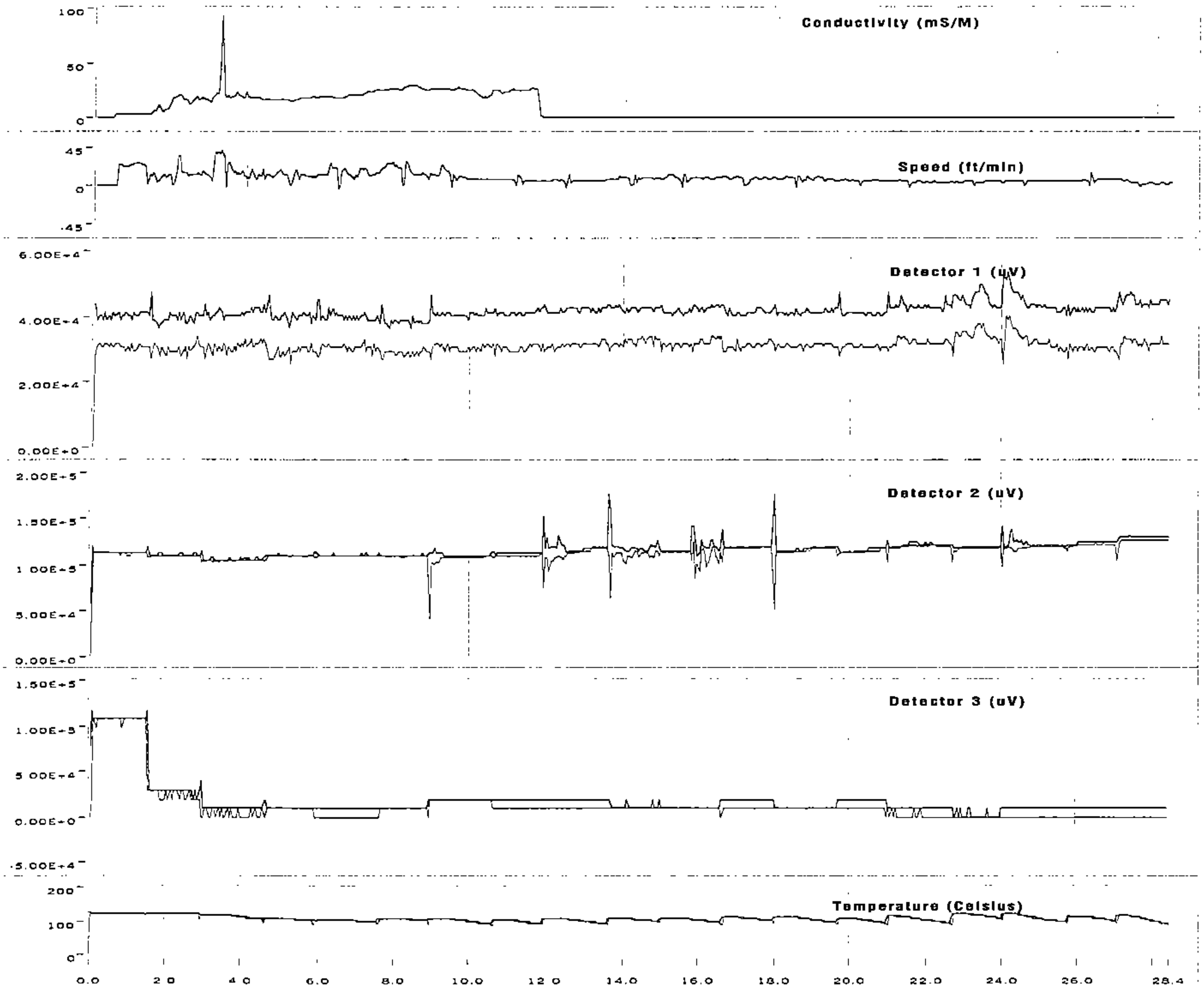

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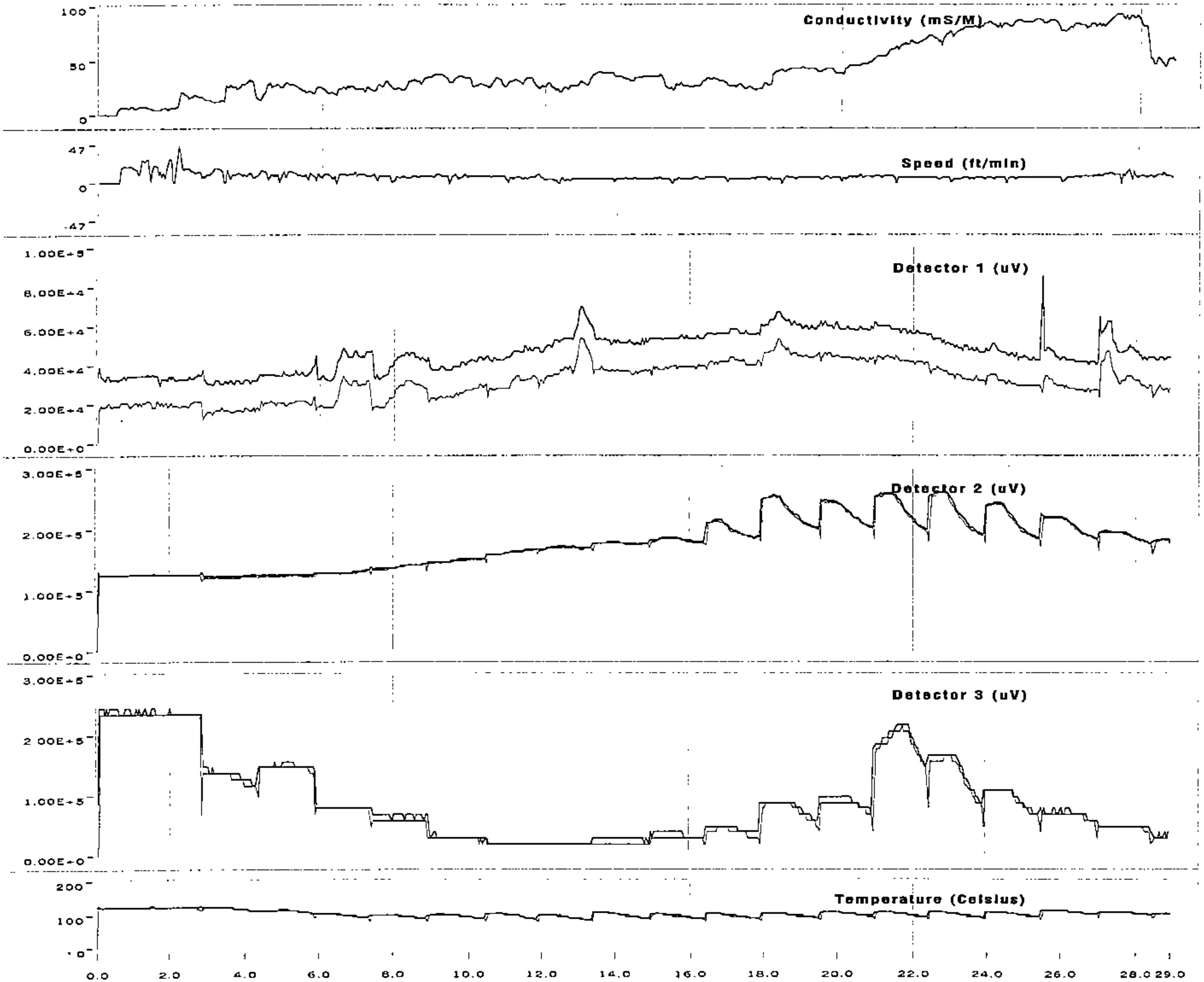

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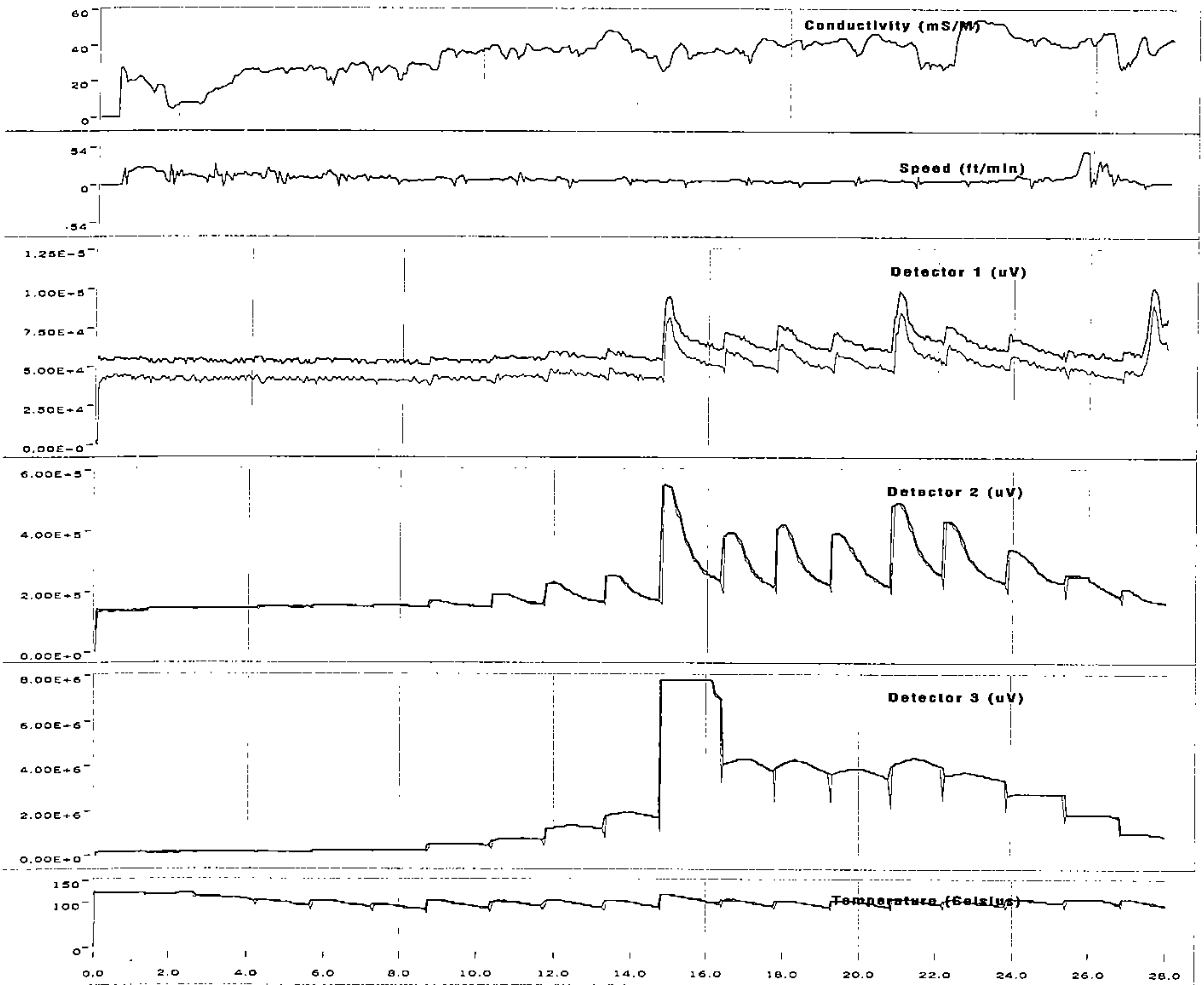

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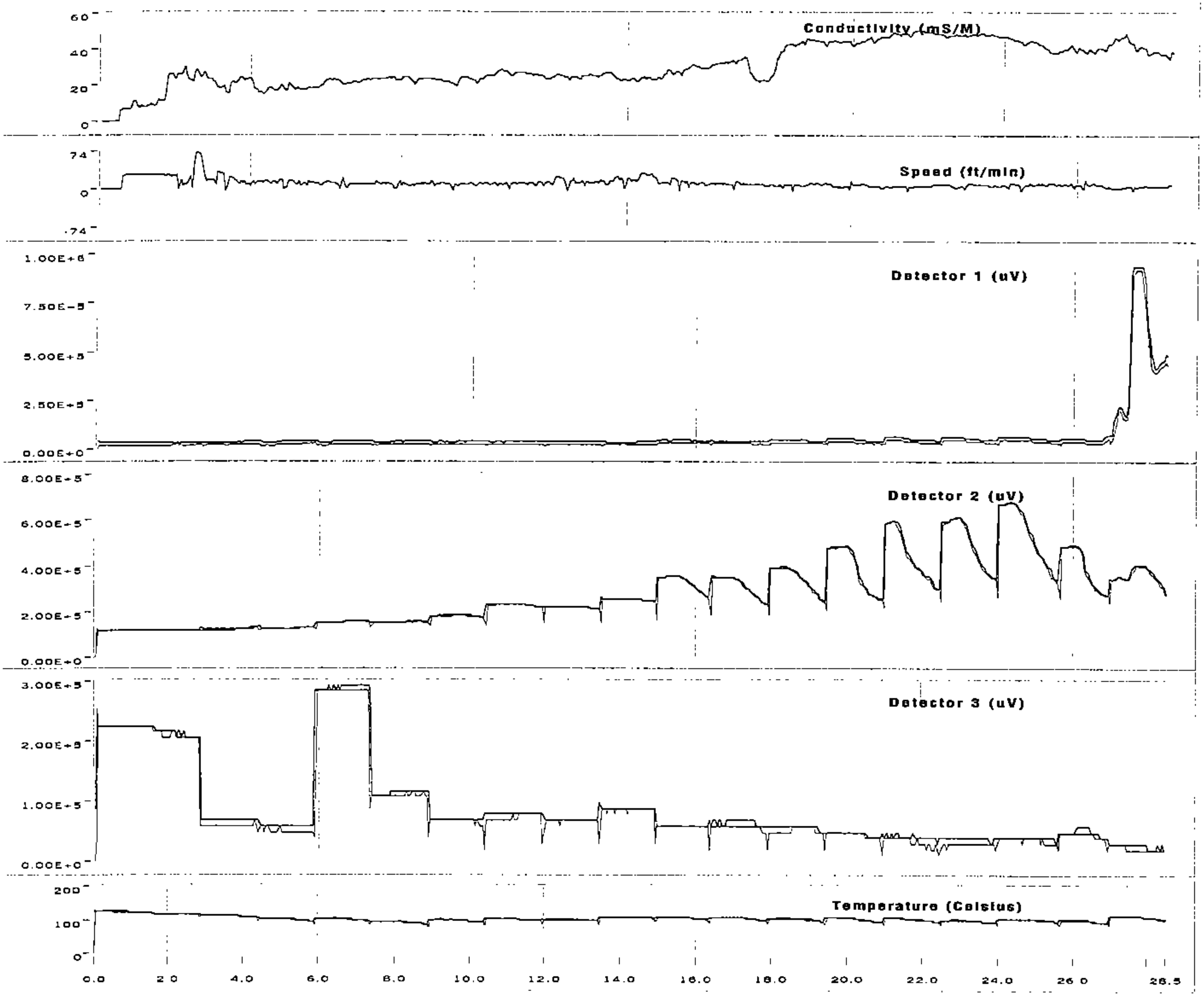
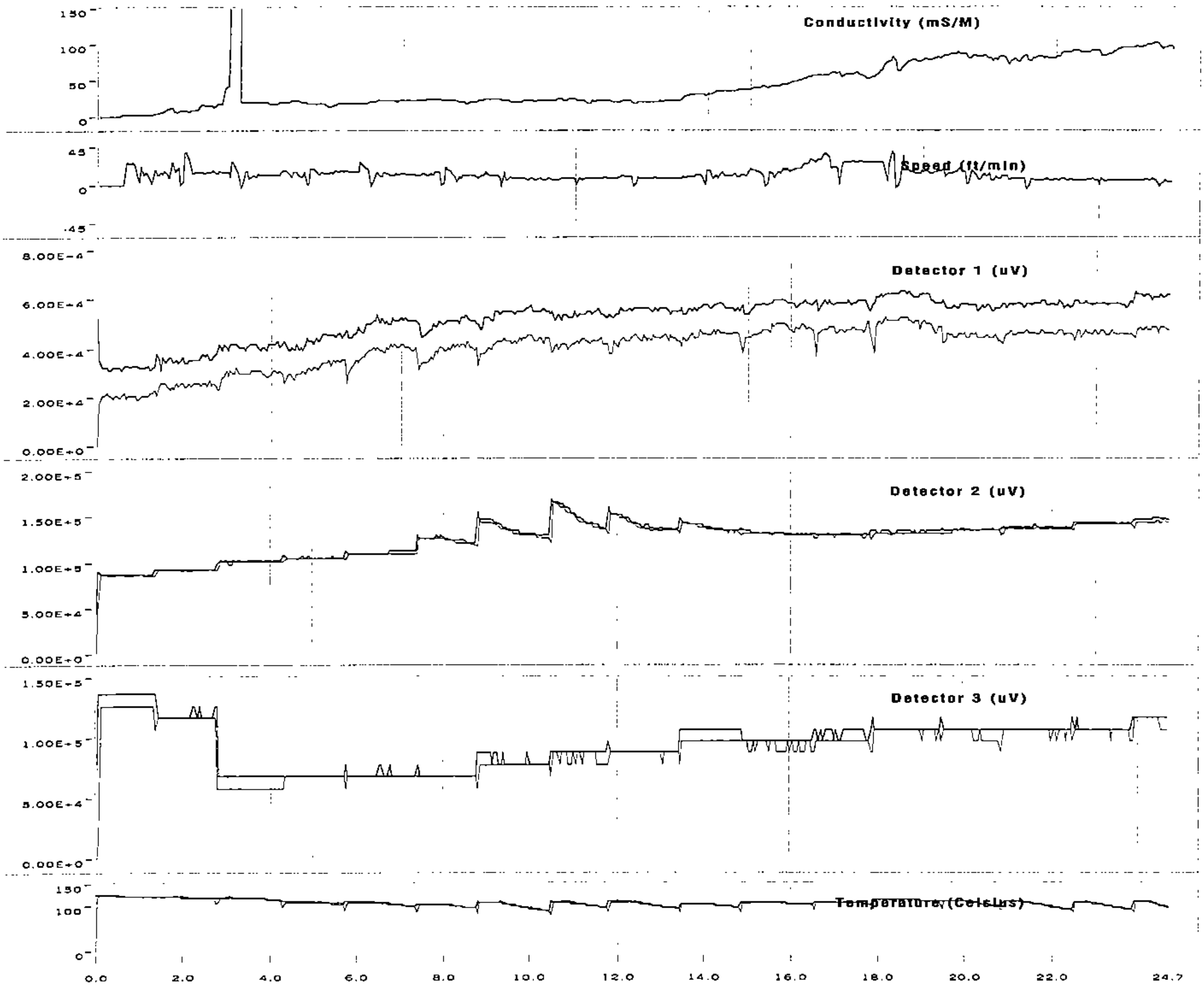
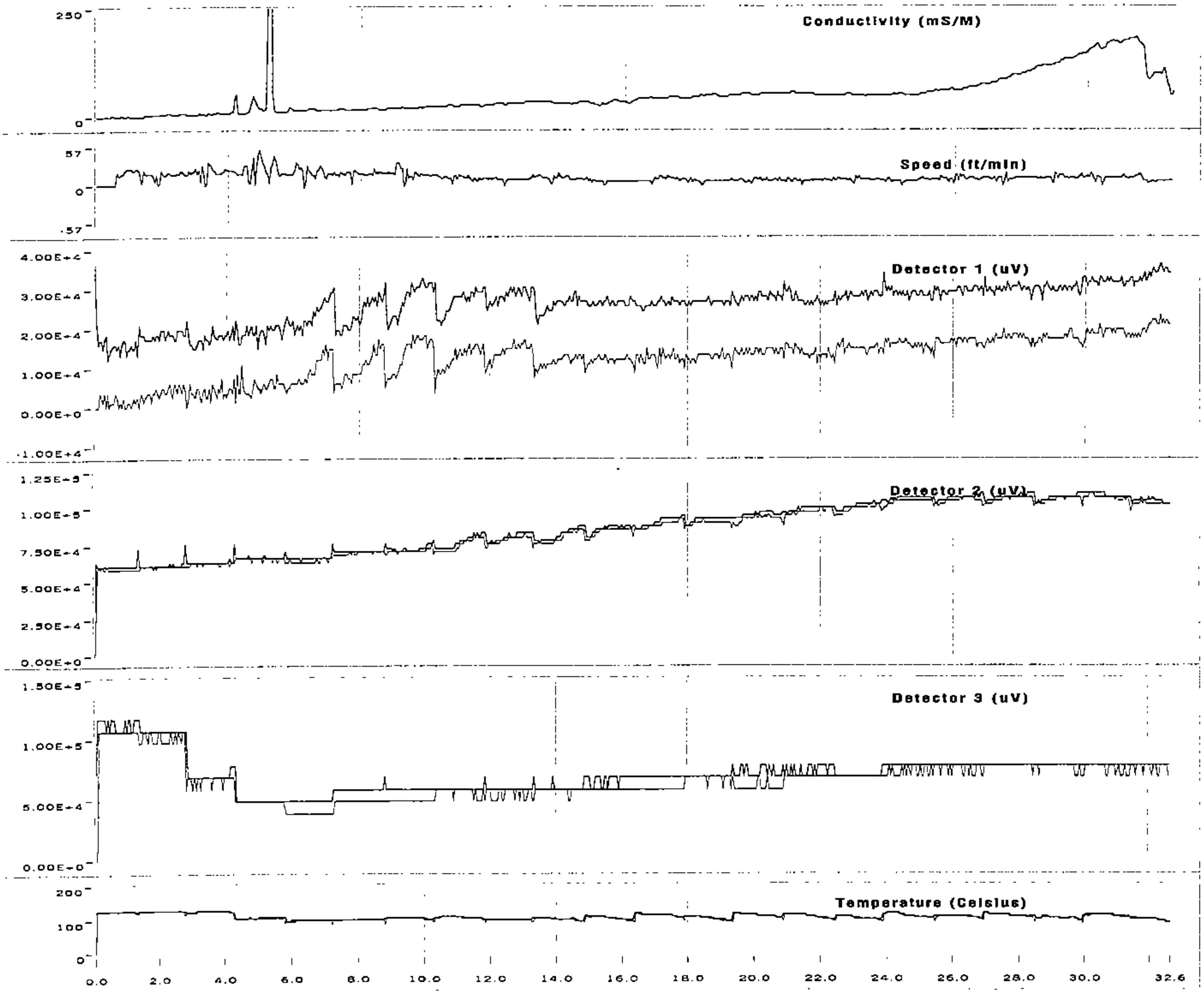


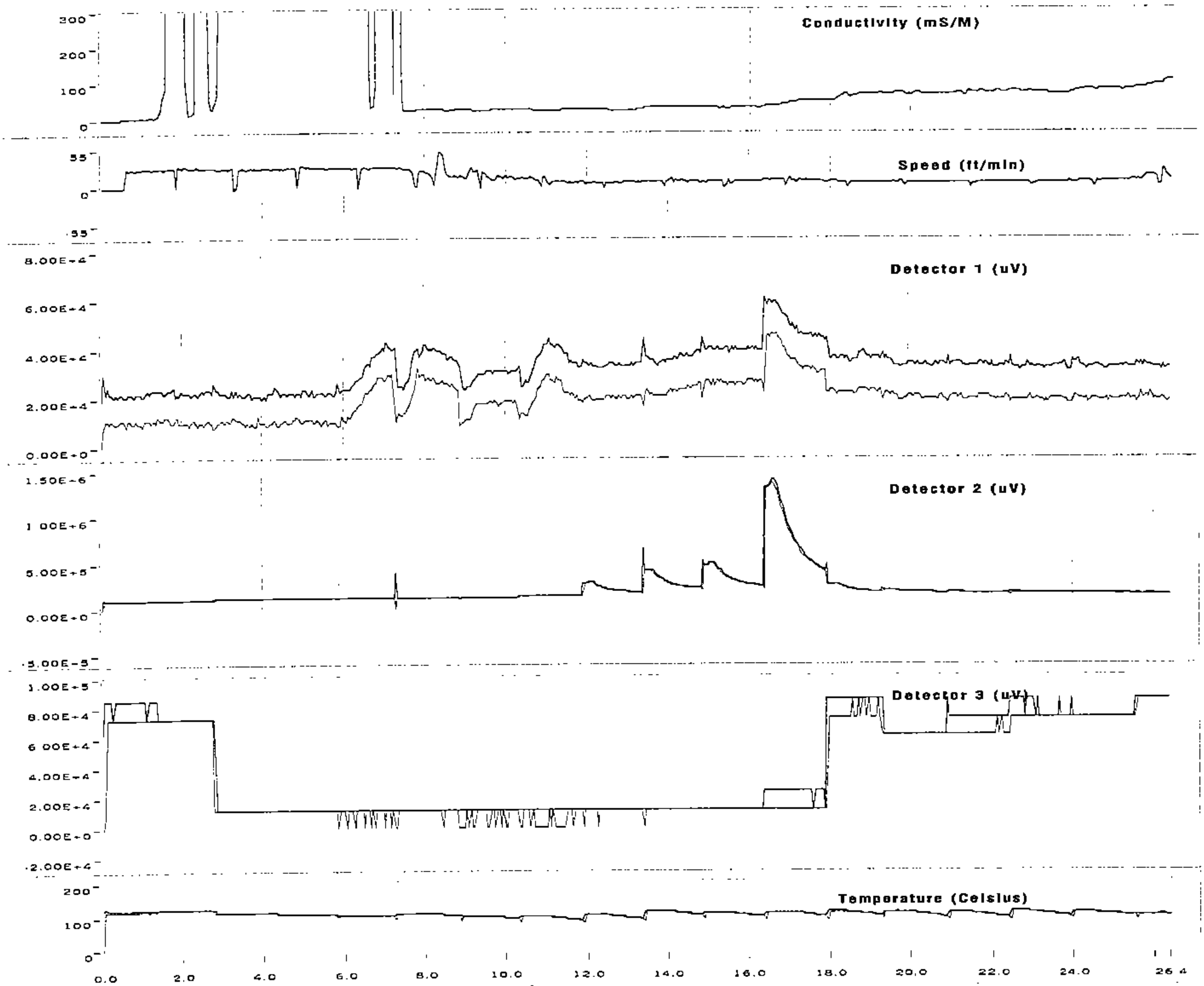
Log: C:\dlrlm95\LOGFILES\Omcmp61a.dat



Log: C:\dirlm95\LOGFILES\Omcmp62c.dat



Log: C:\dirlm95\LOGFILES\0mcmp063.dat



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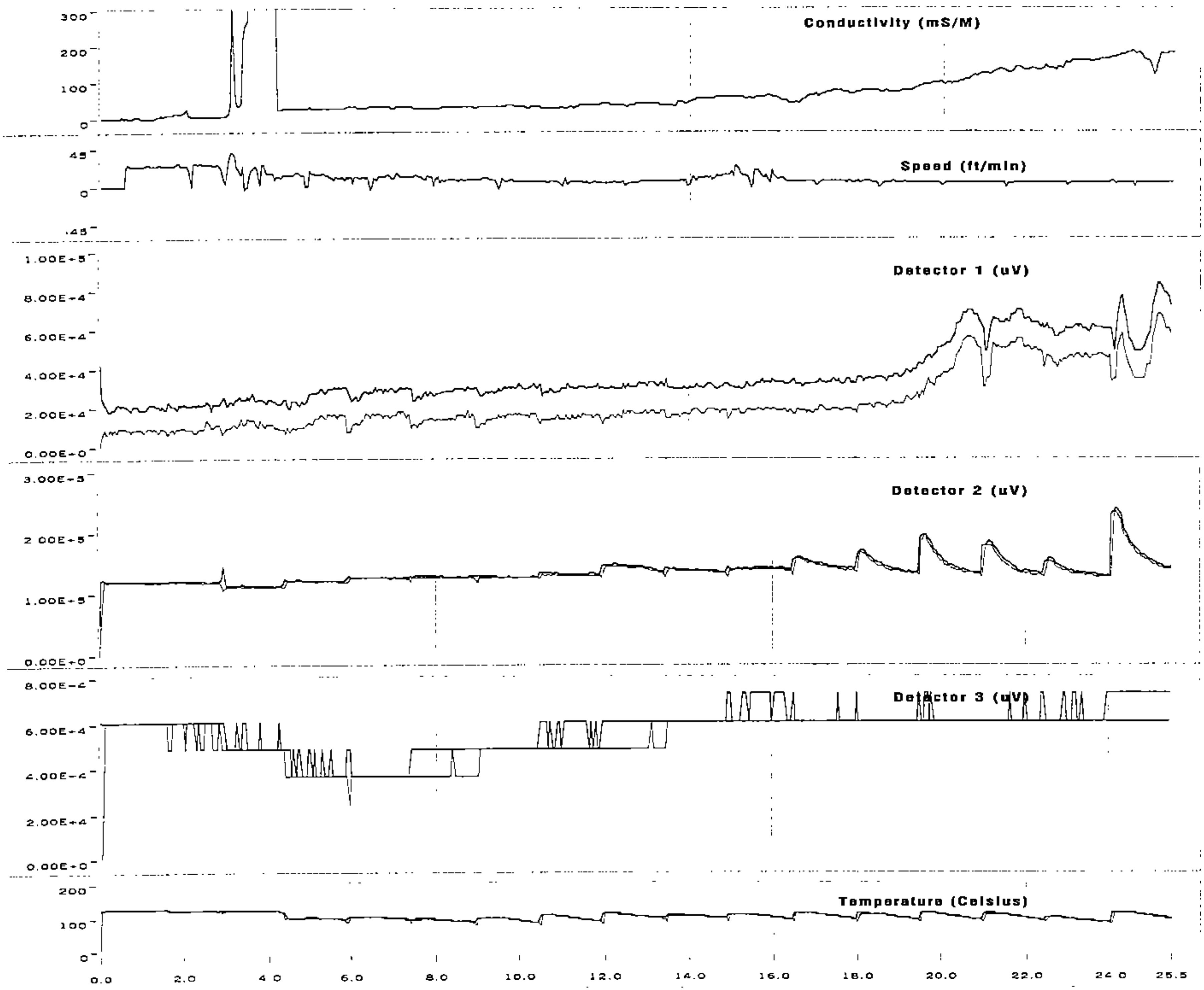
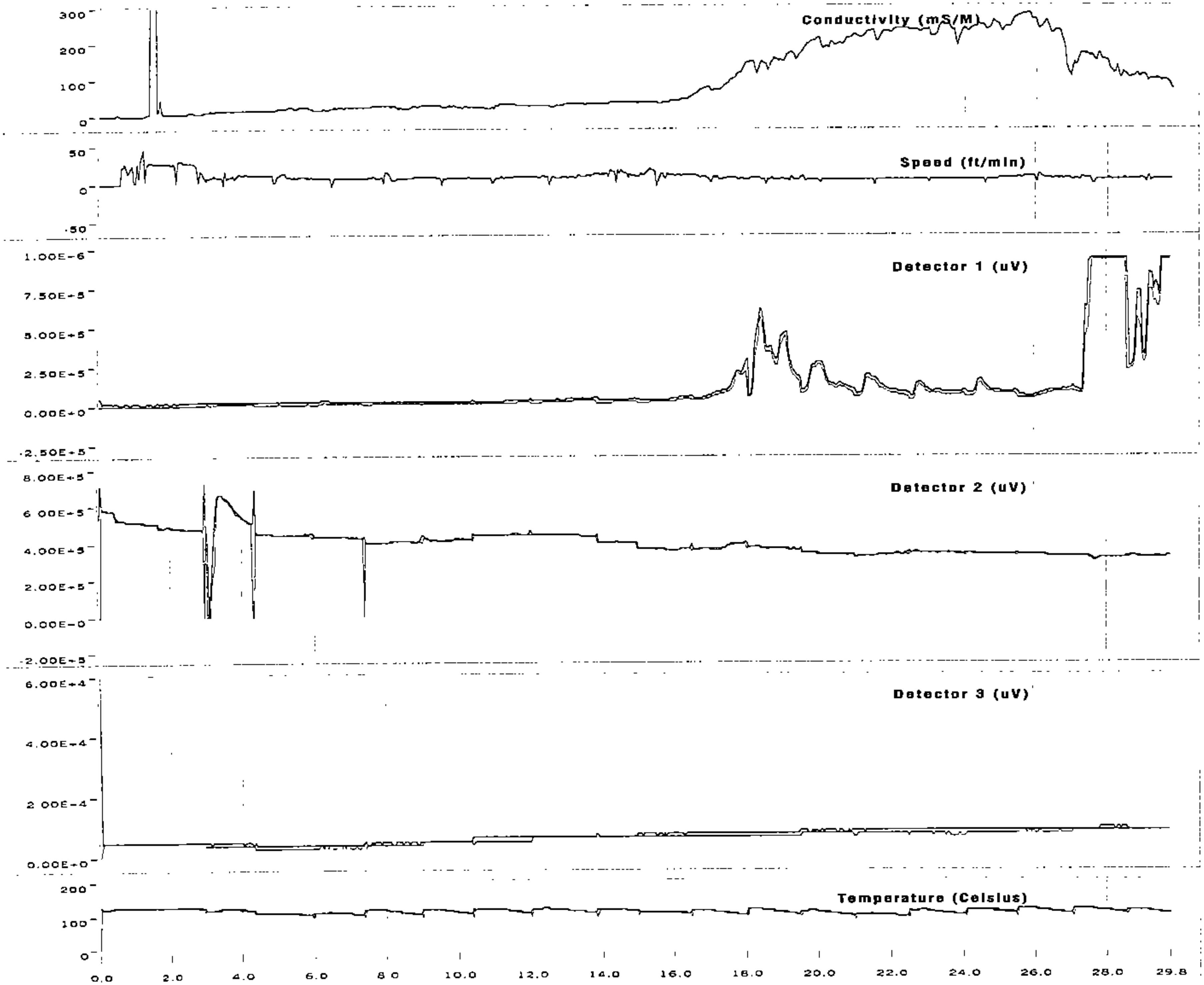


Log: C:\dirlm95\LOGFILES\Omcmp65a.dat



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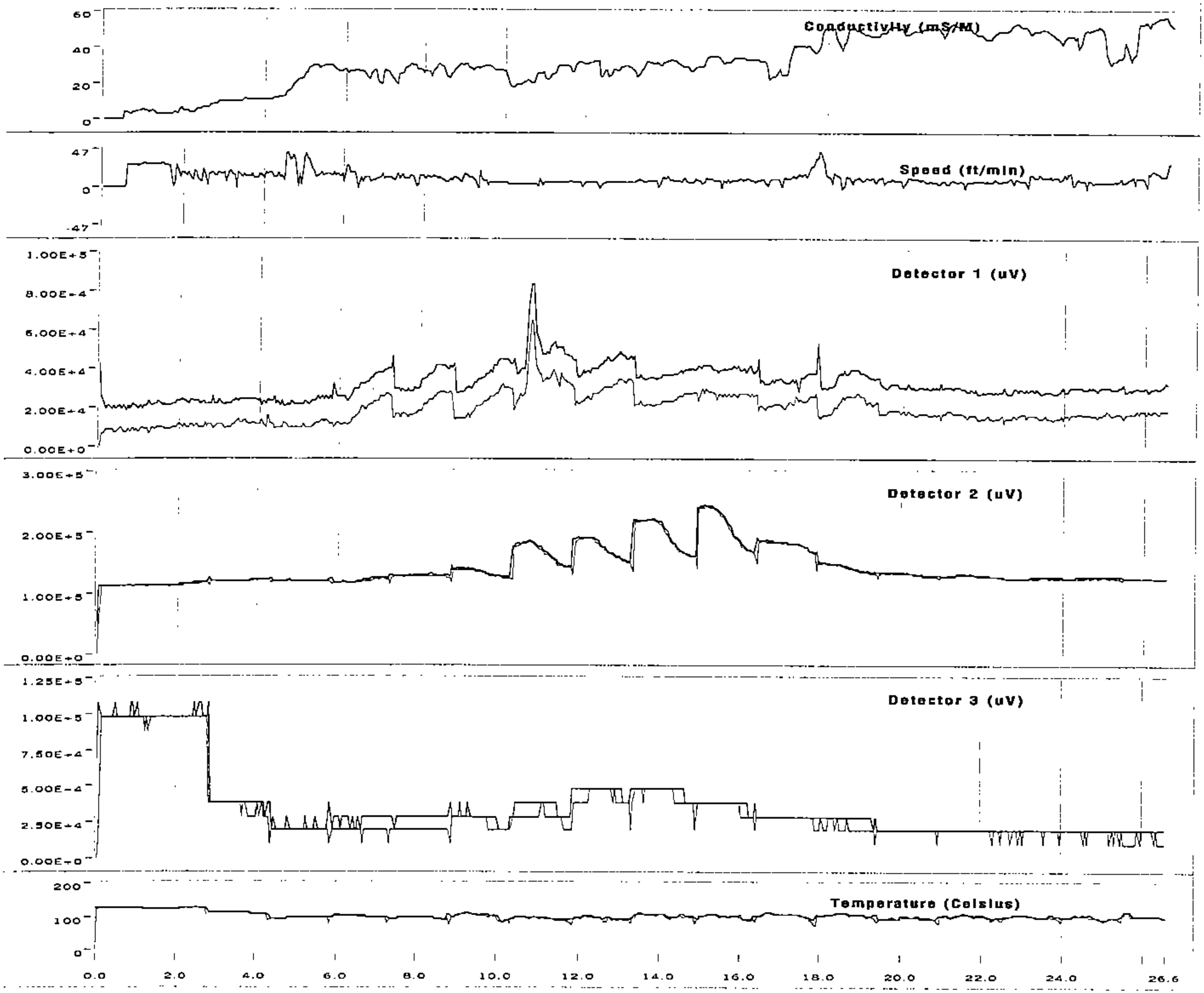
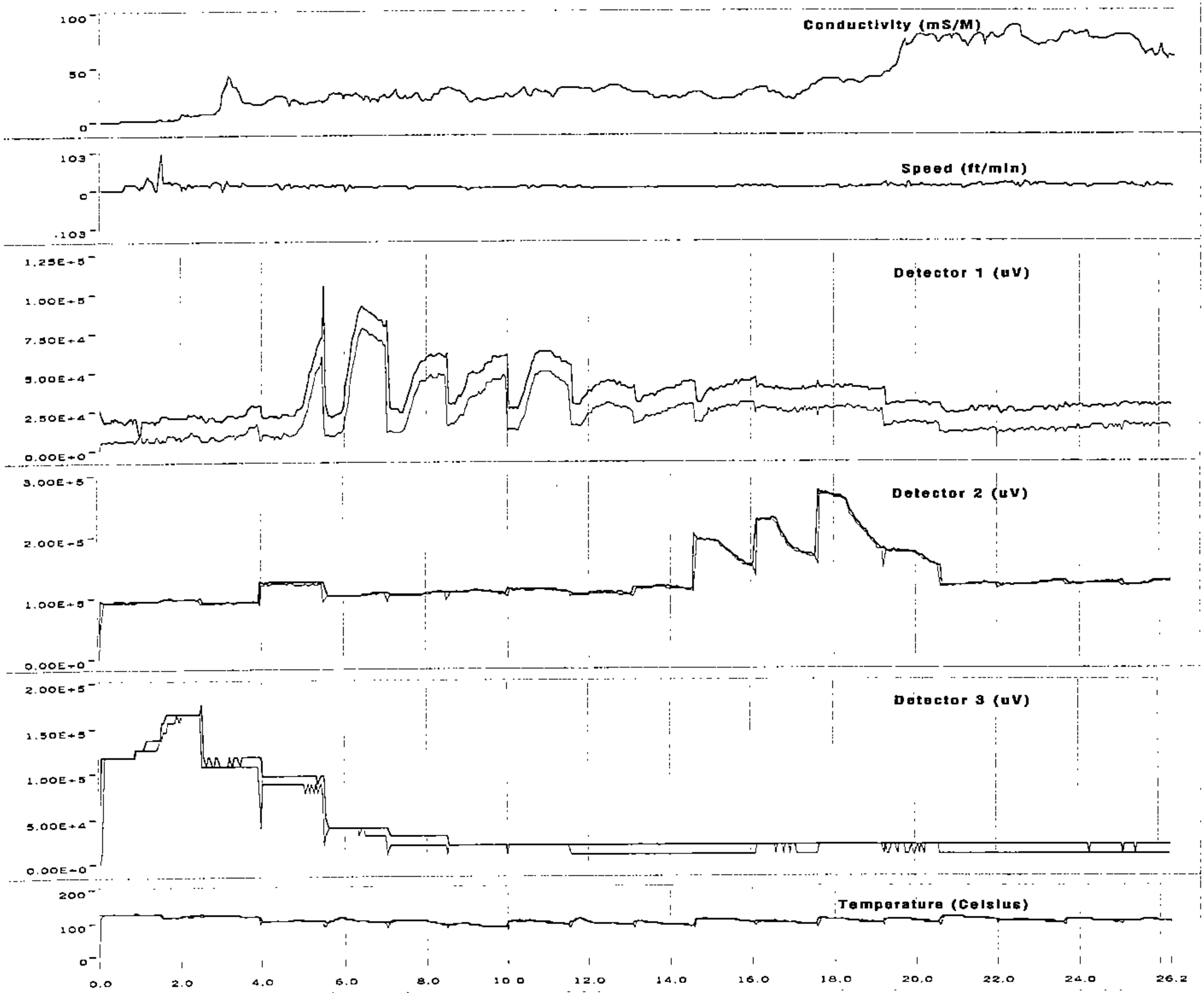


Log: C:\dlrim95\LOGFILES\Omcmp067.dat



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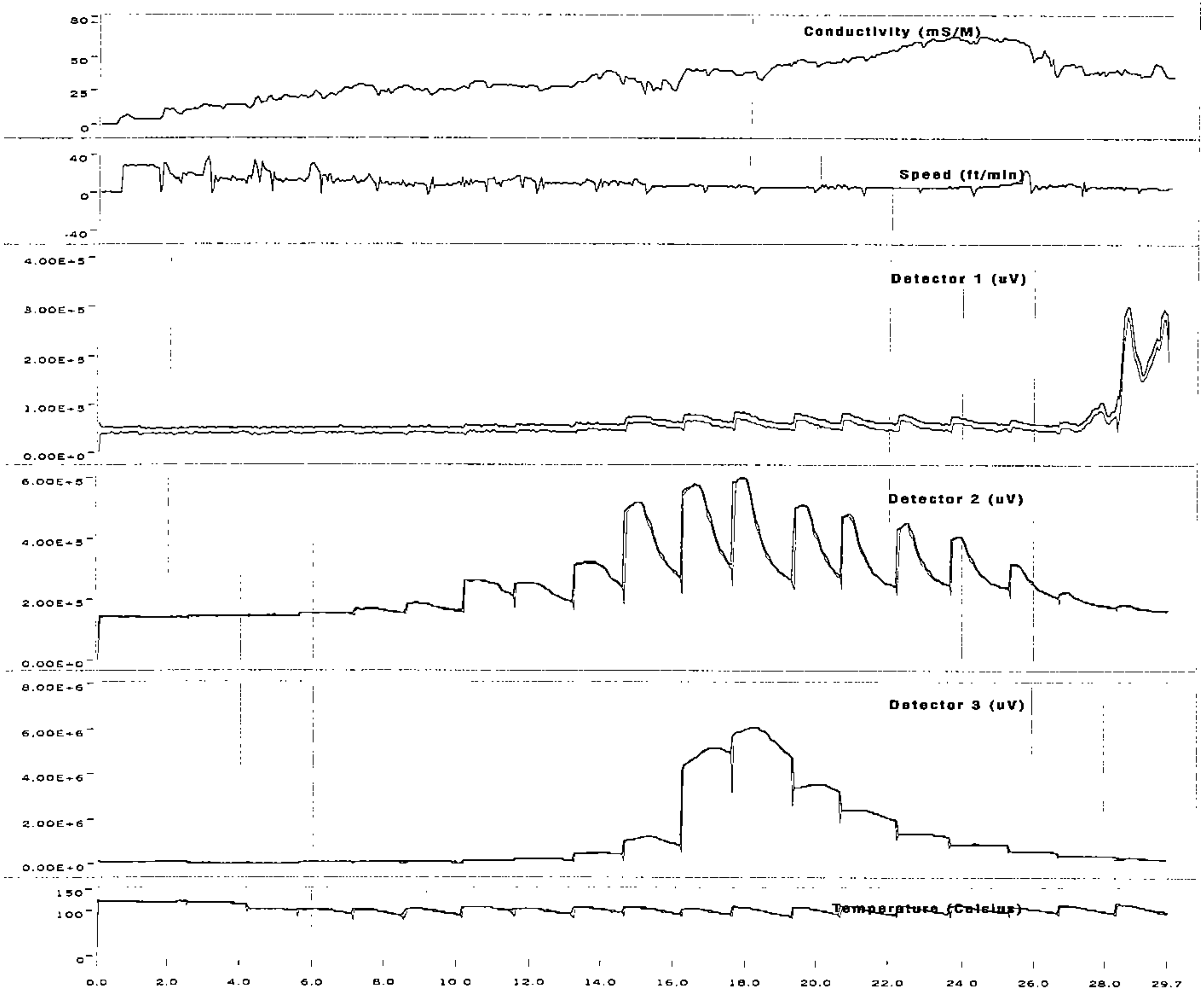

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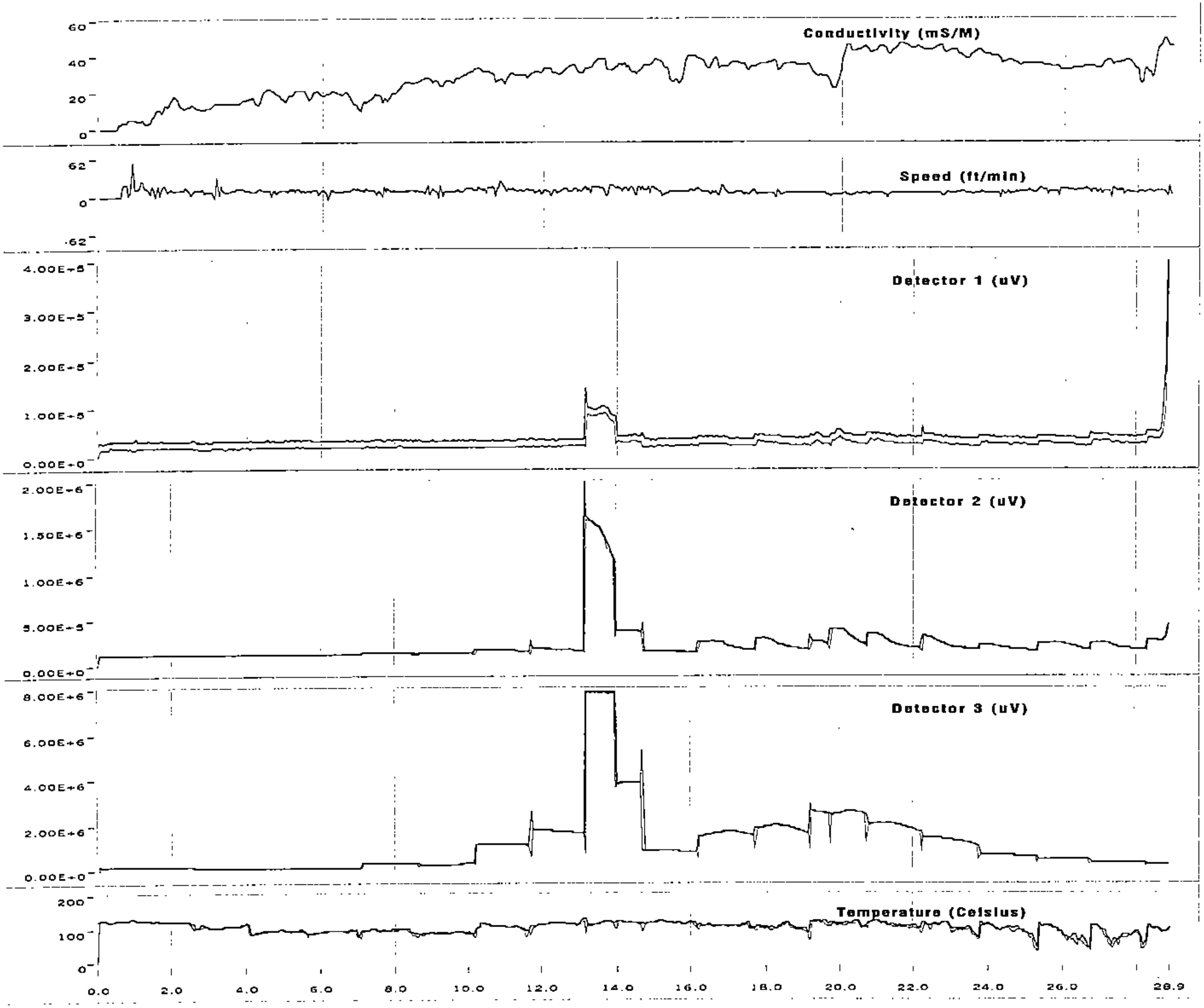

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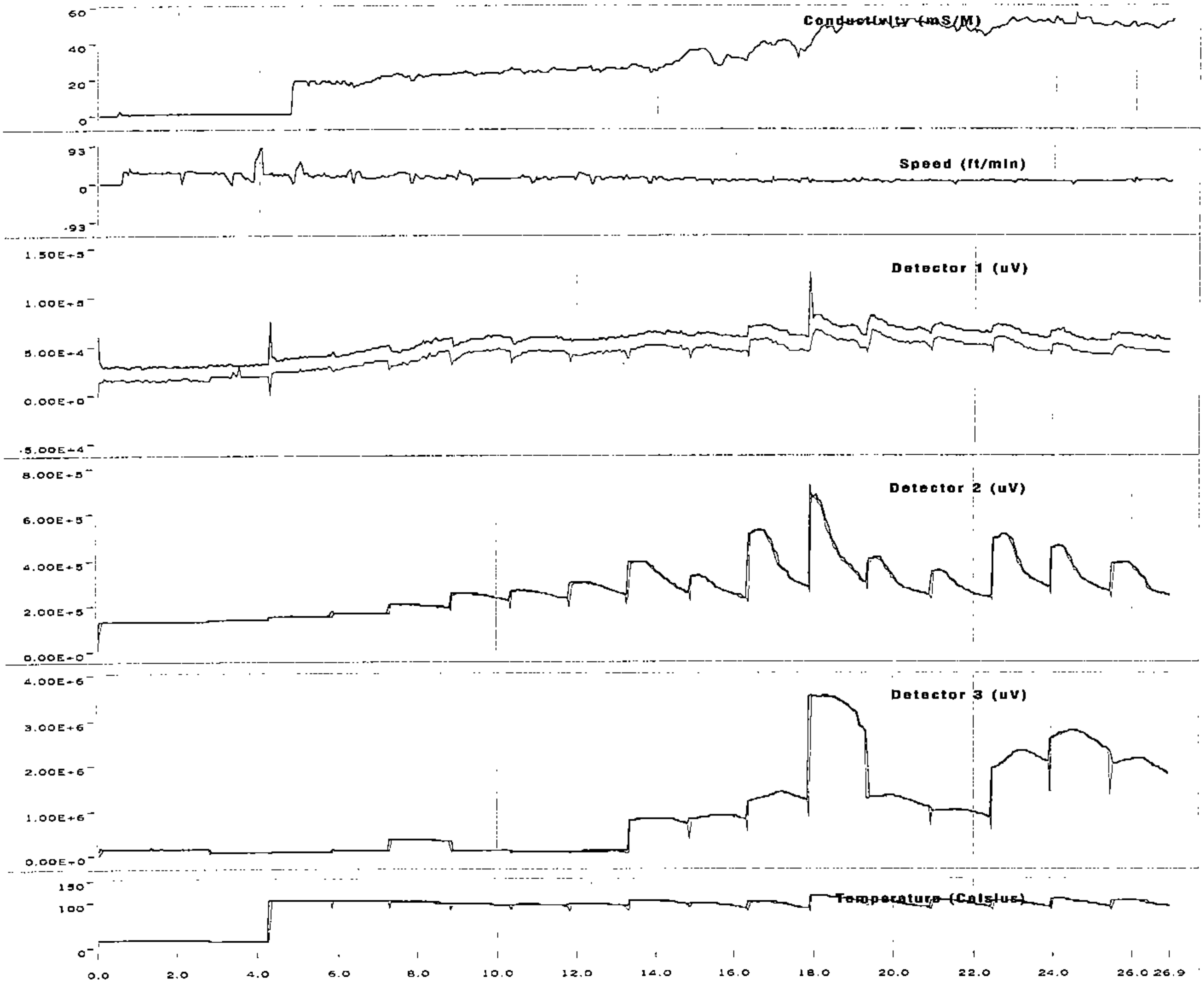

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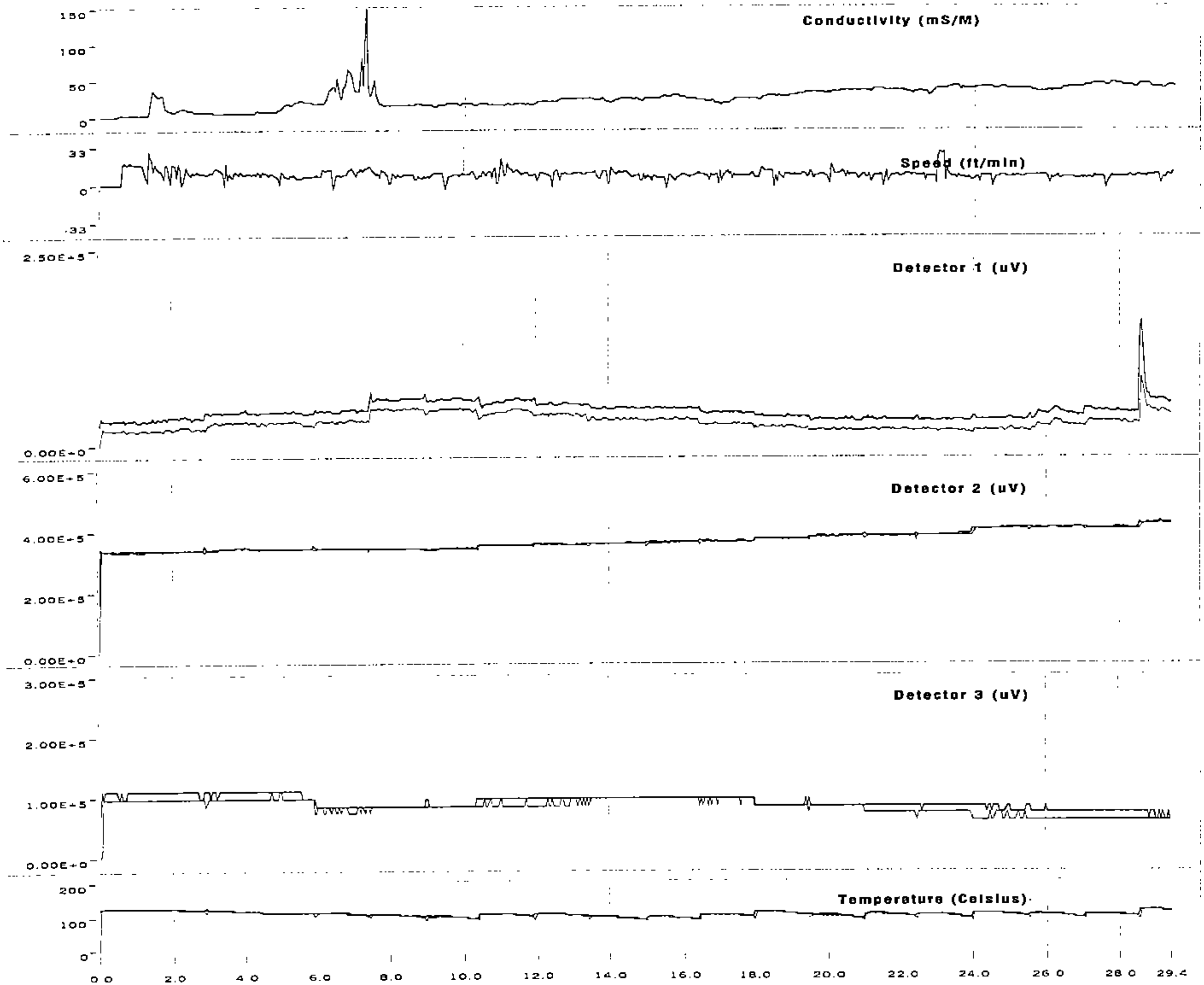
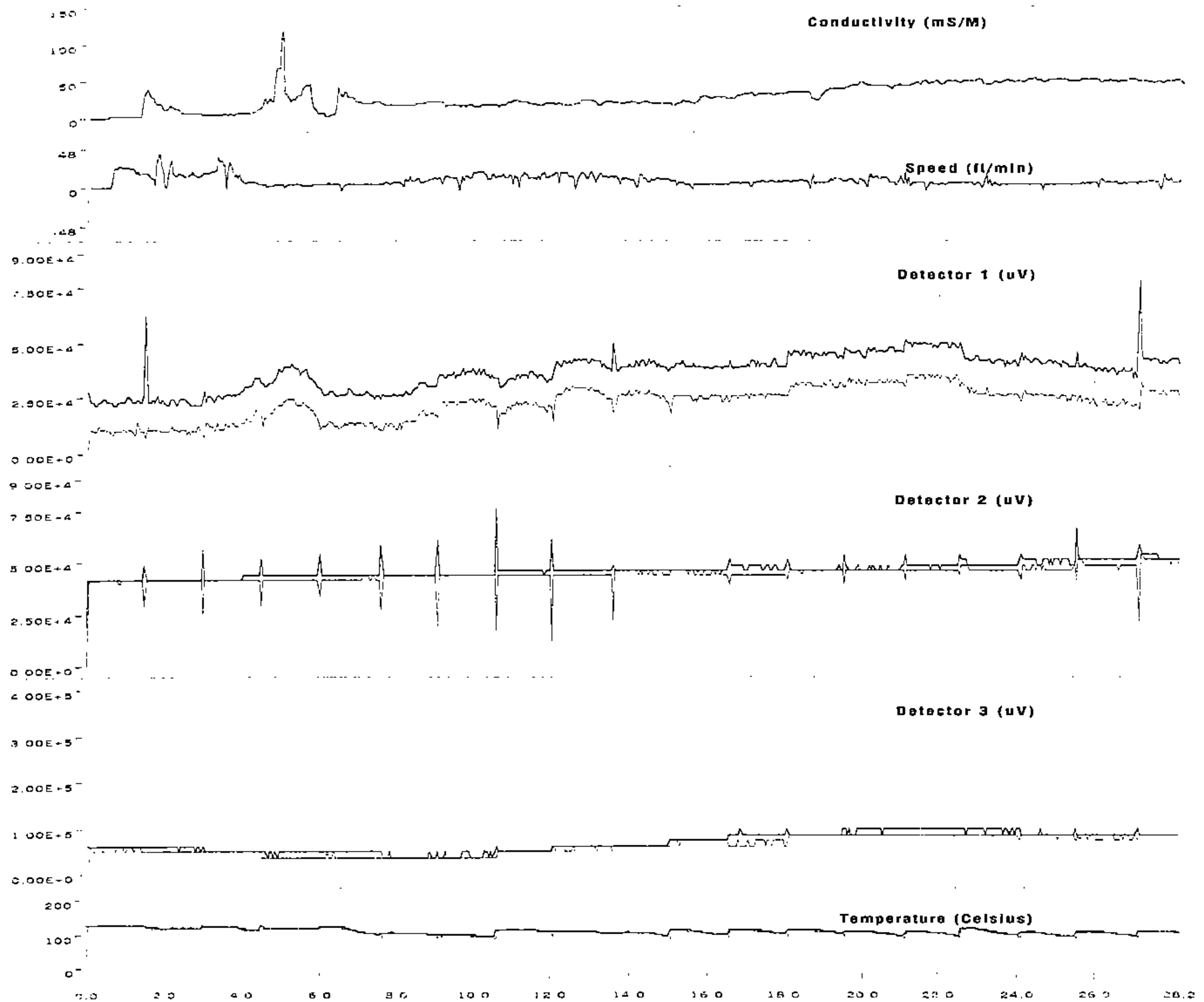
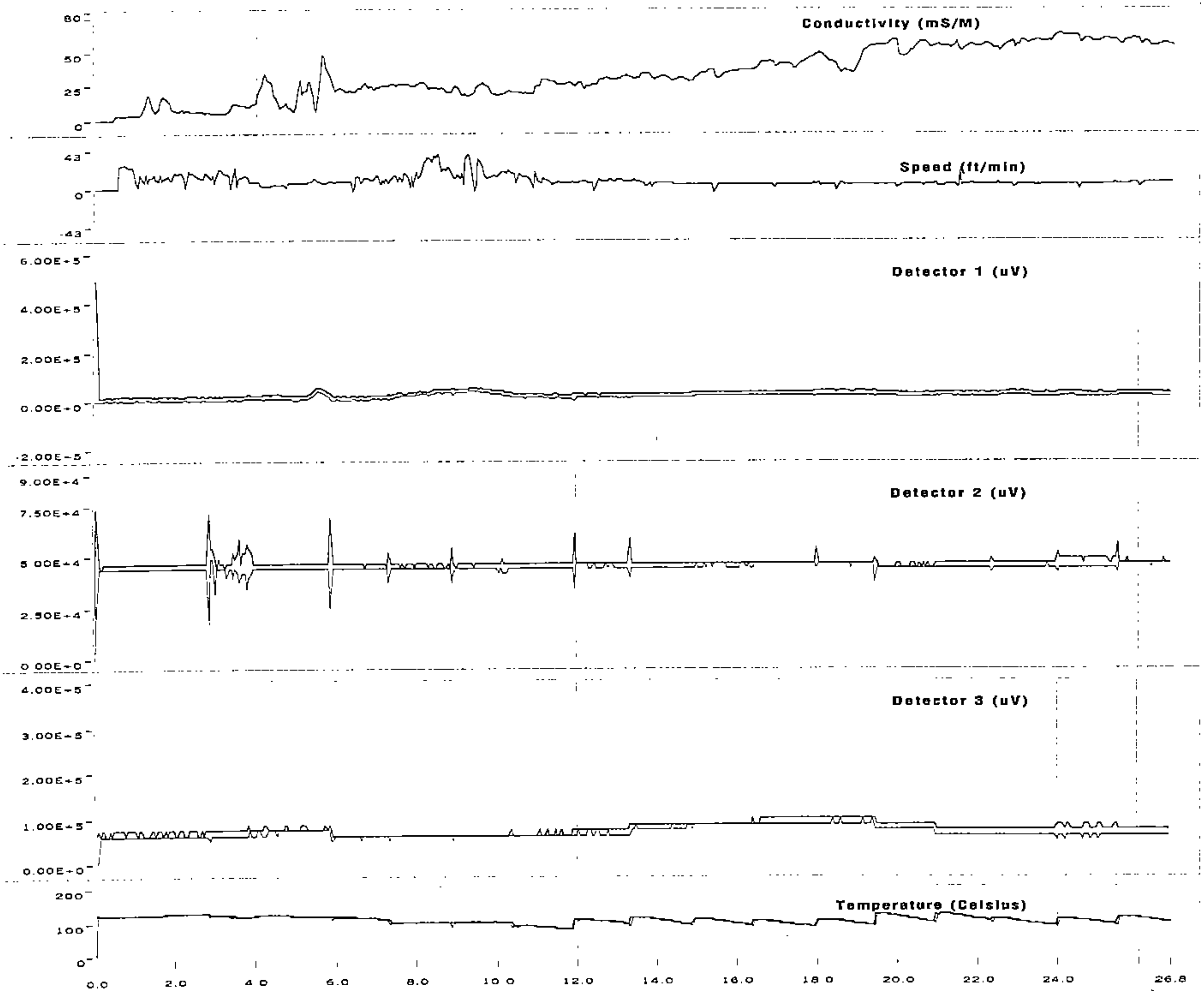


Log: C:\dlrlm95\LOGFILES\Omcmp072.dat



Log: C:\dirim95\LOGFILES\Omcmo073.dat



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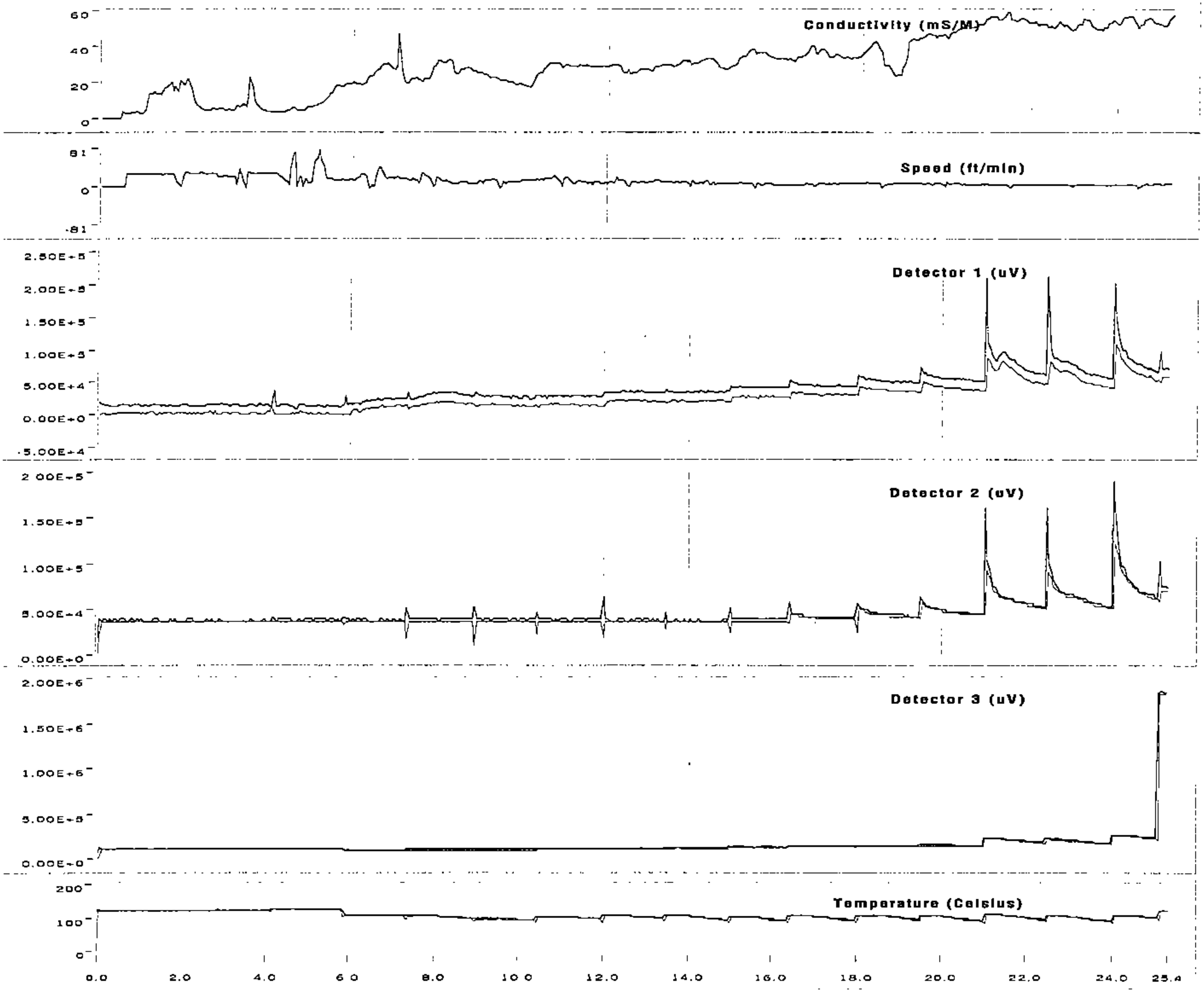

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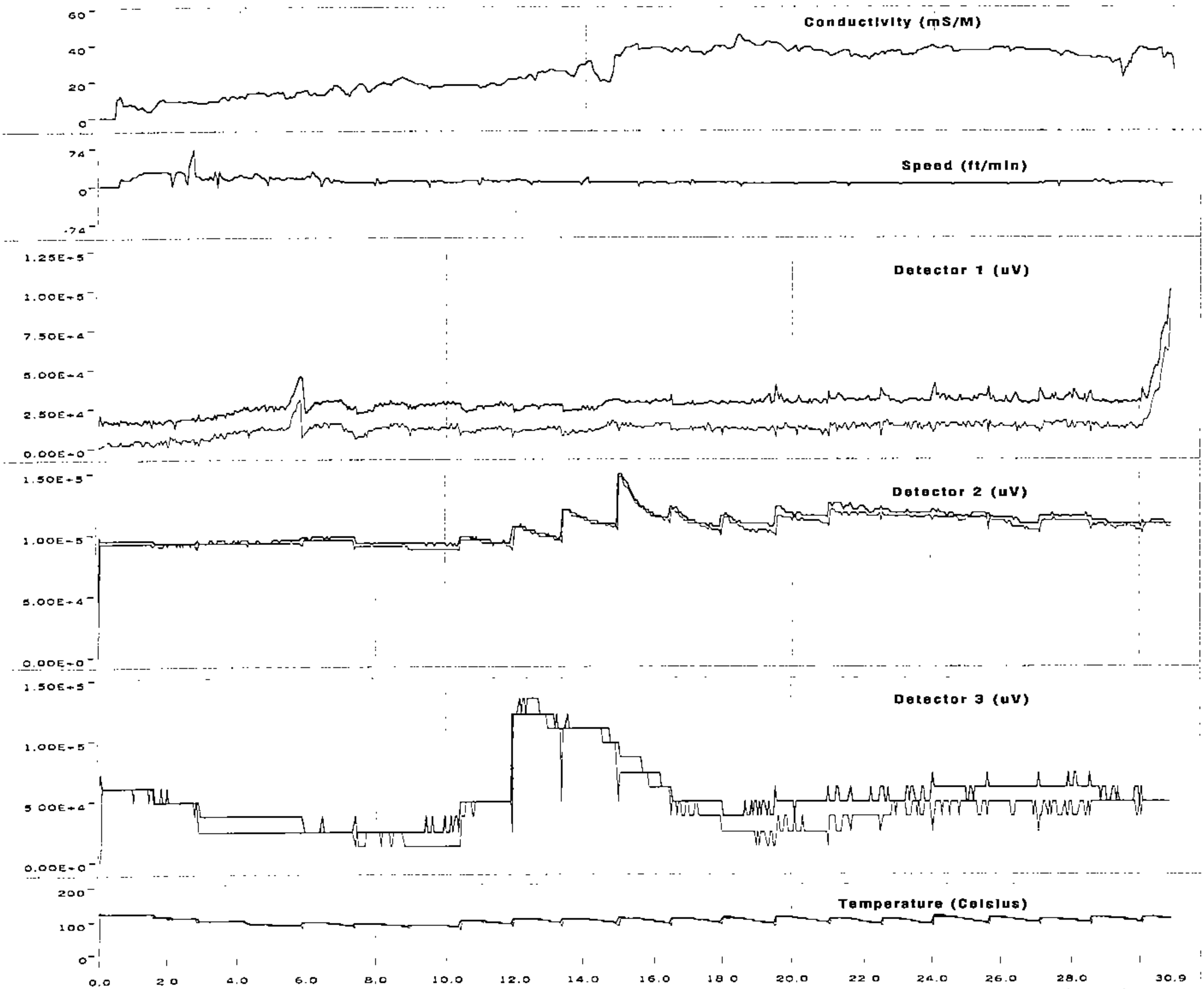
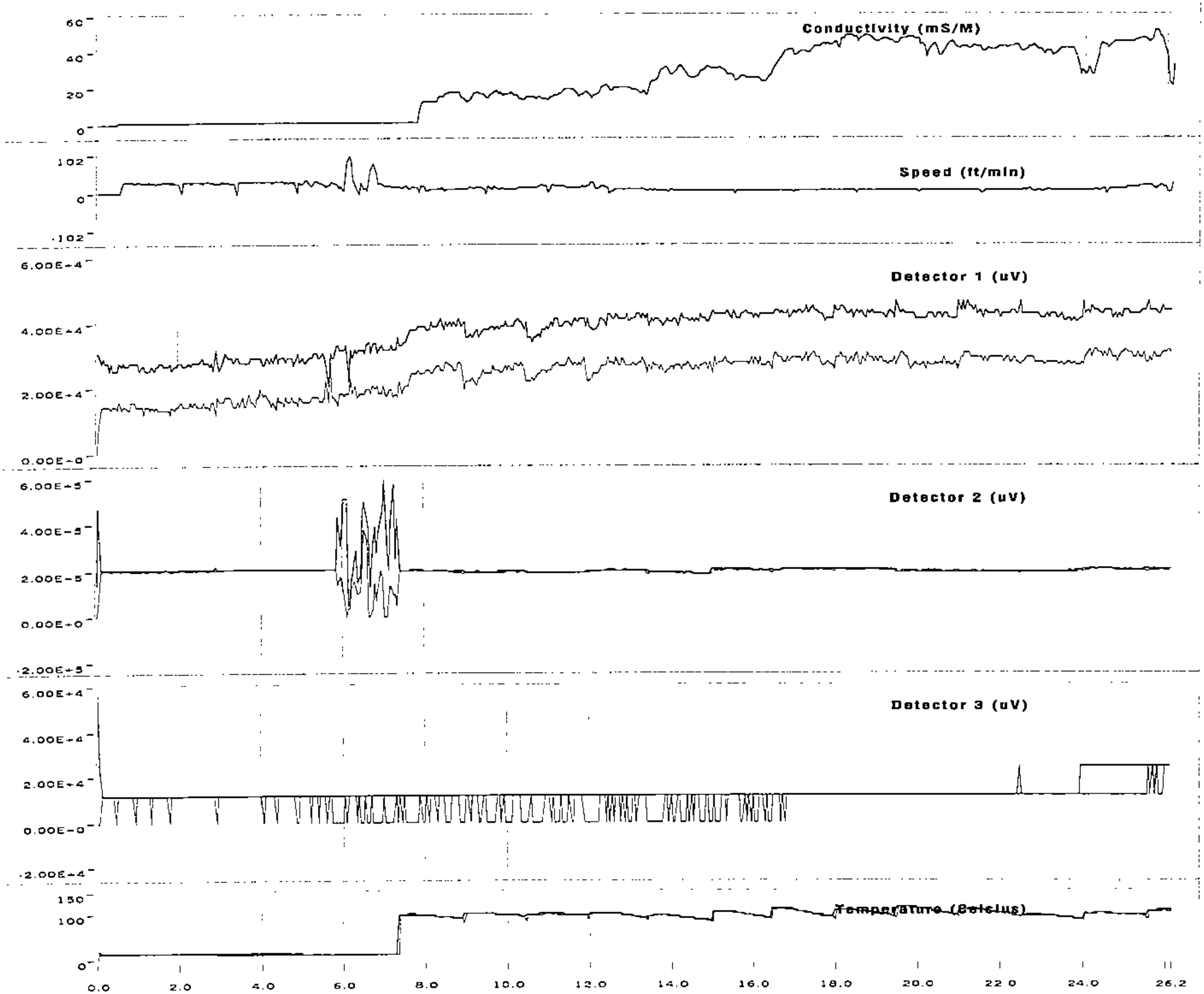
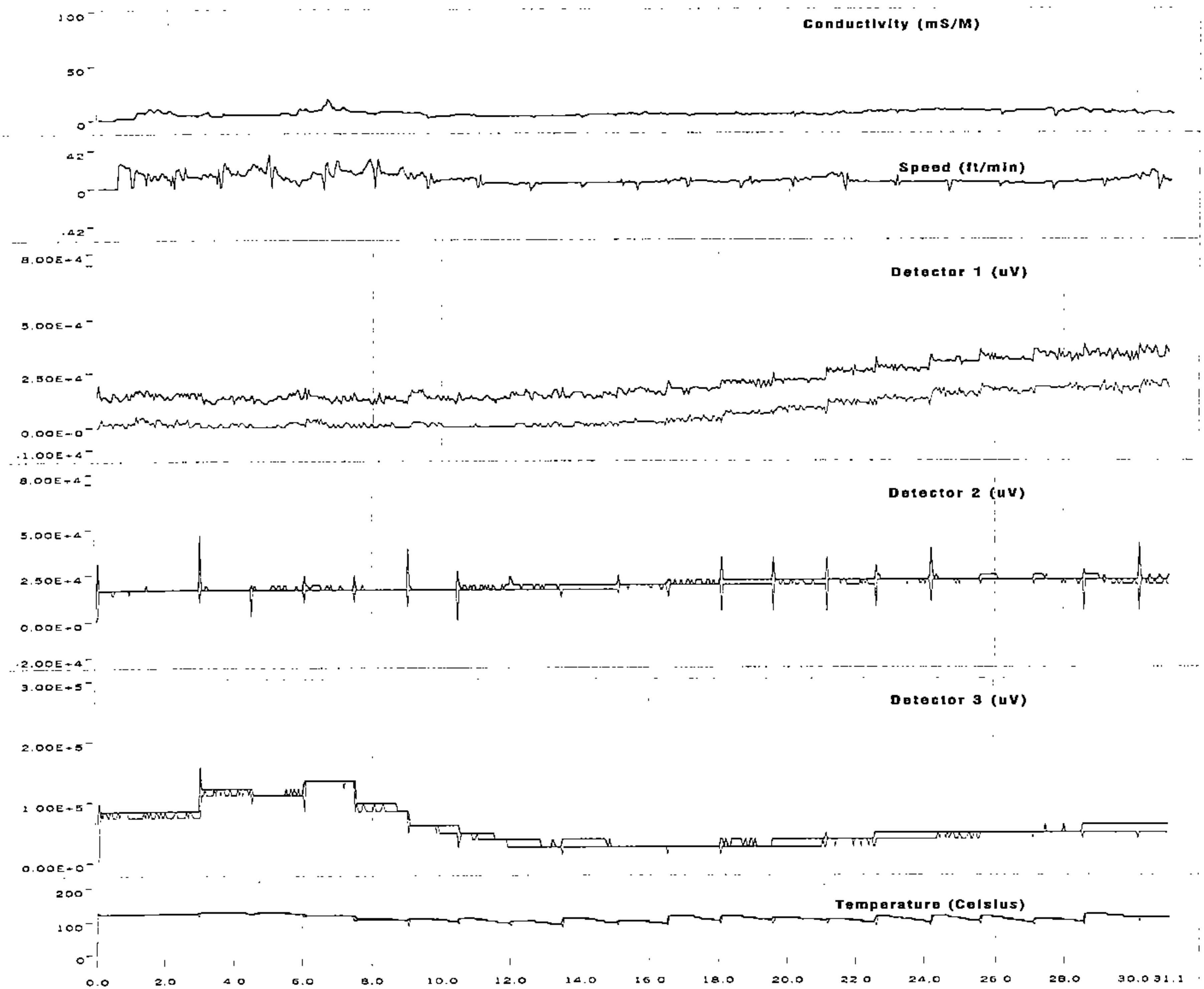


Log: C:\dlrlm95\LOGFILES\Omcmp76a.dat



Log: C:\dlrim95\LOGFILES\Omcmp077.dat



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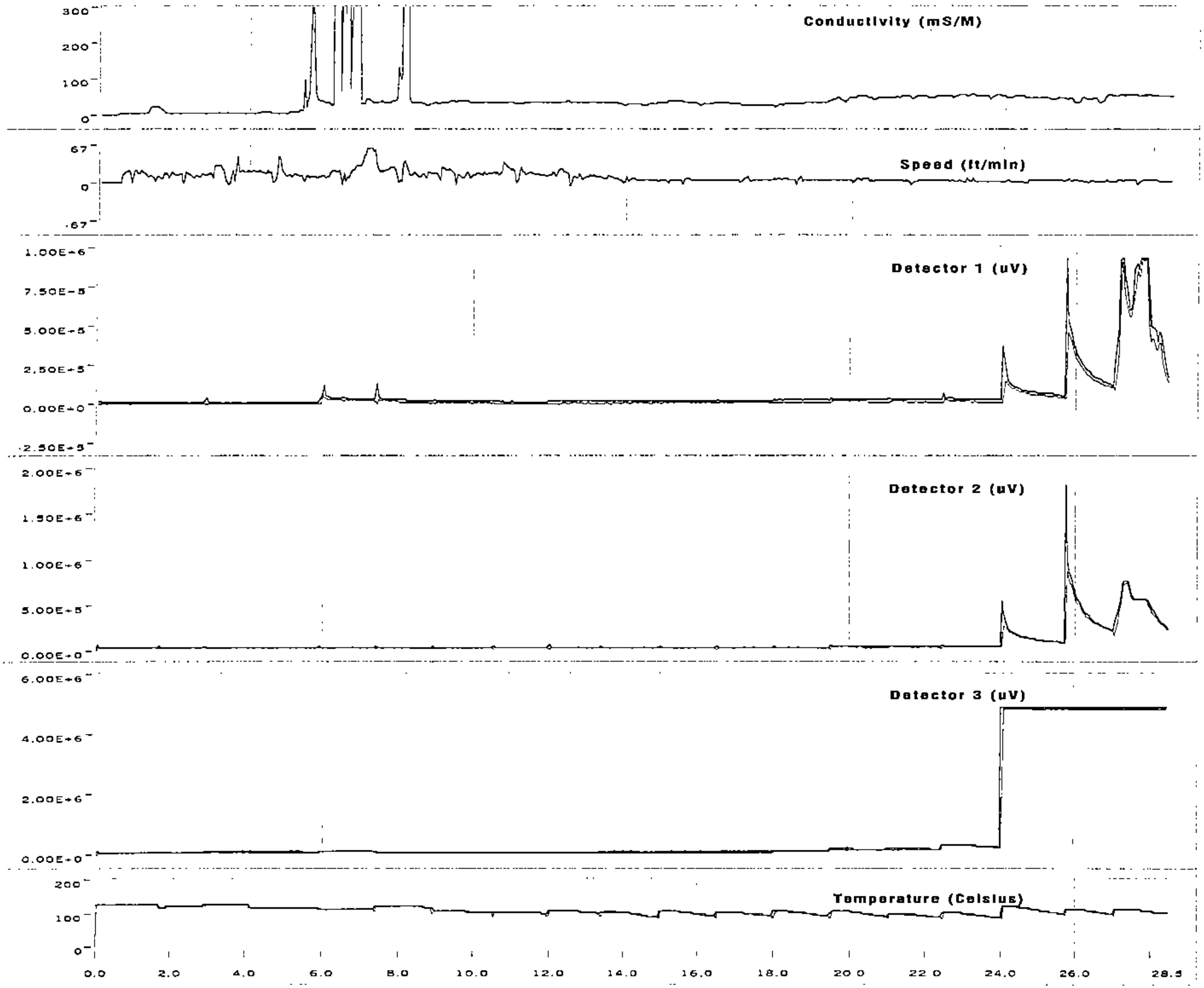

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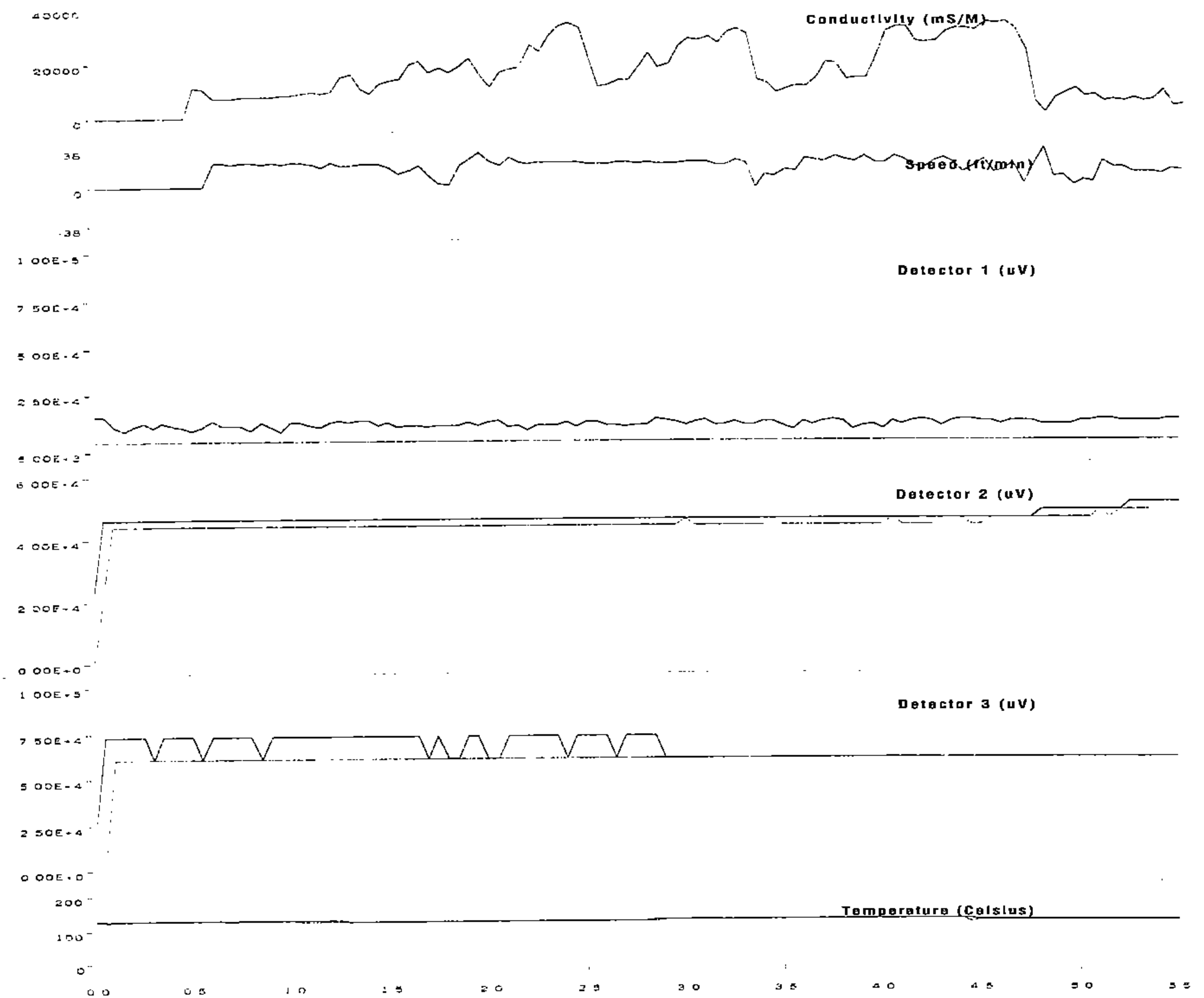

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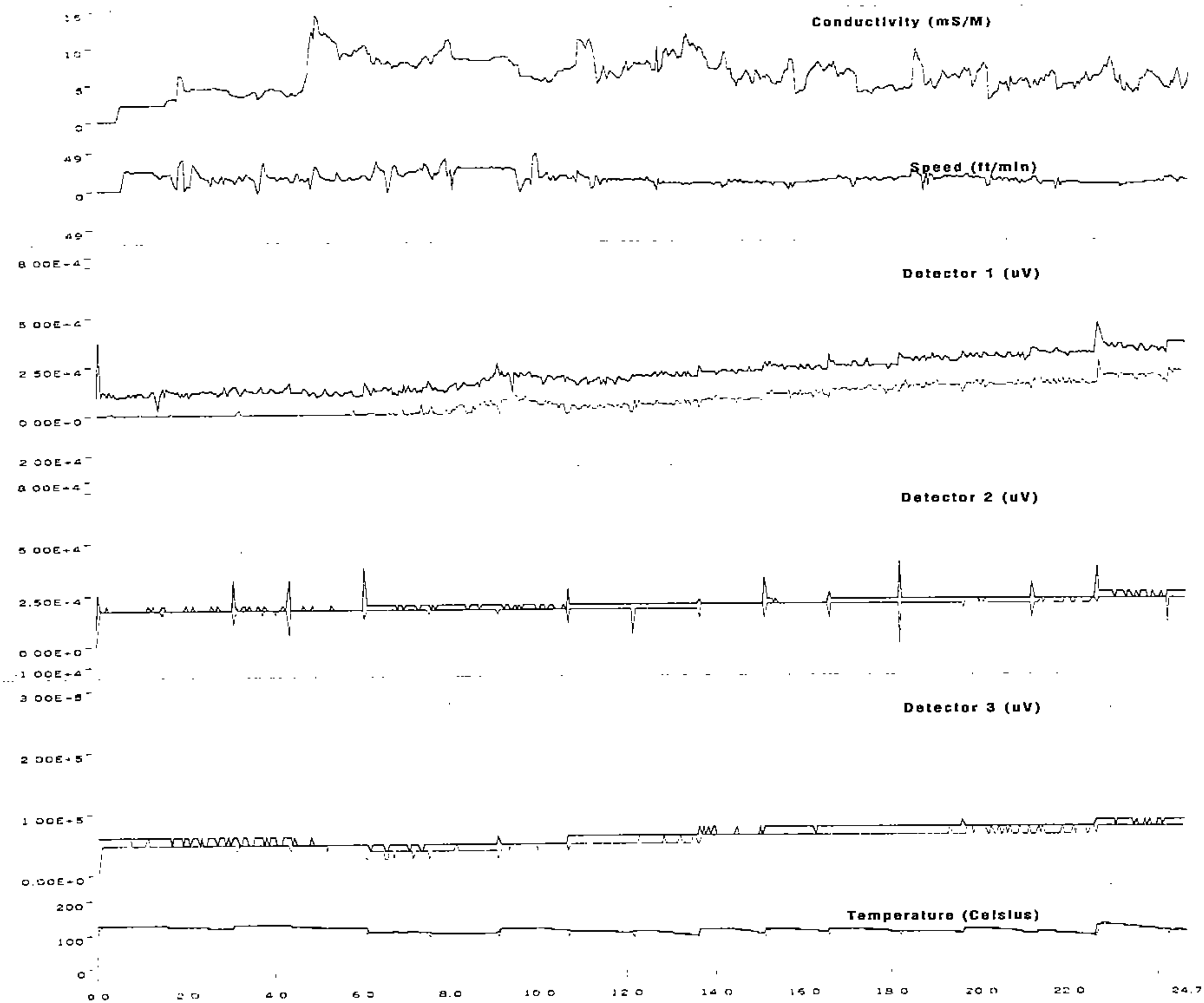

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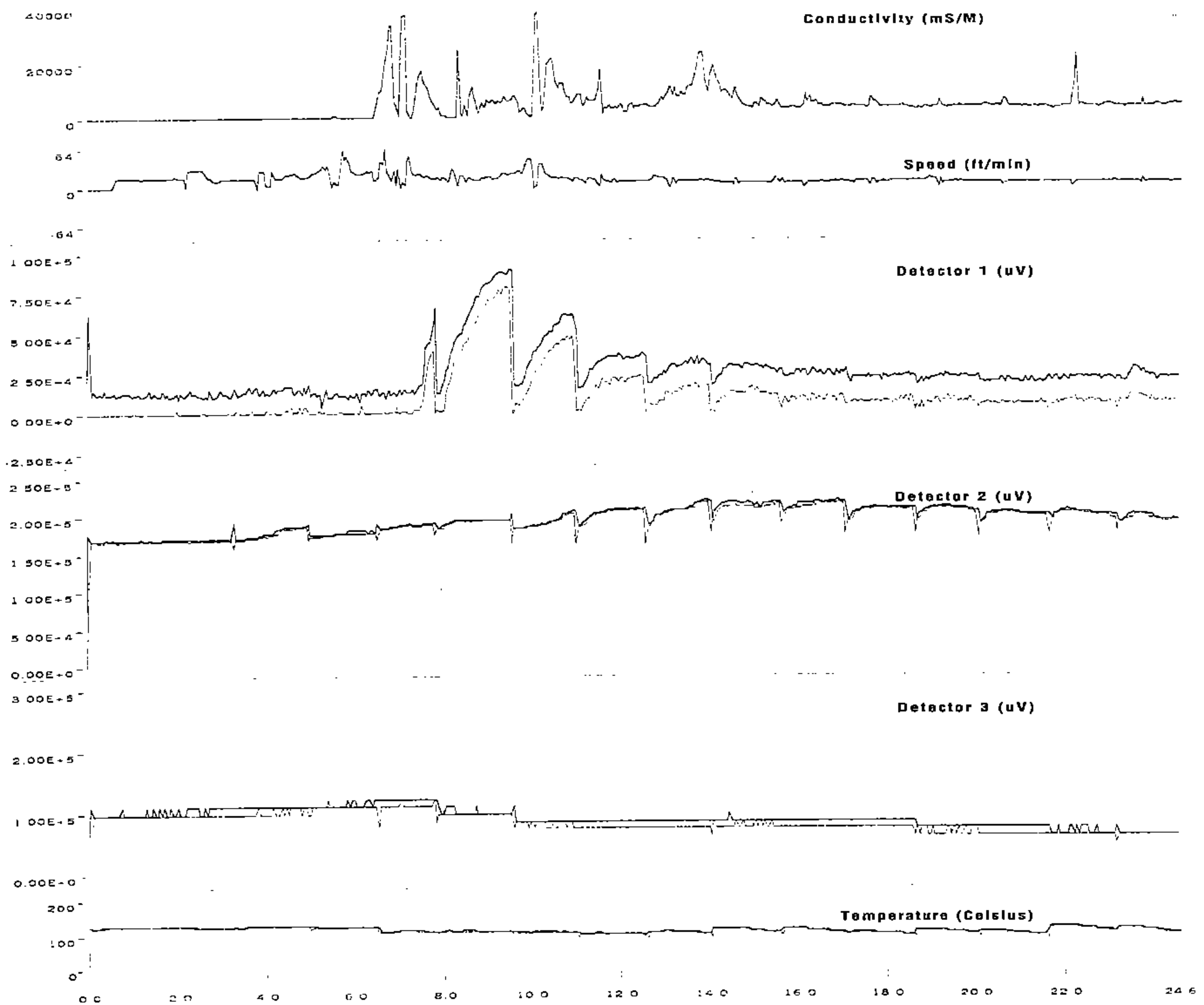

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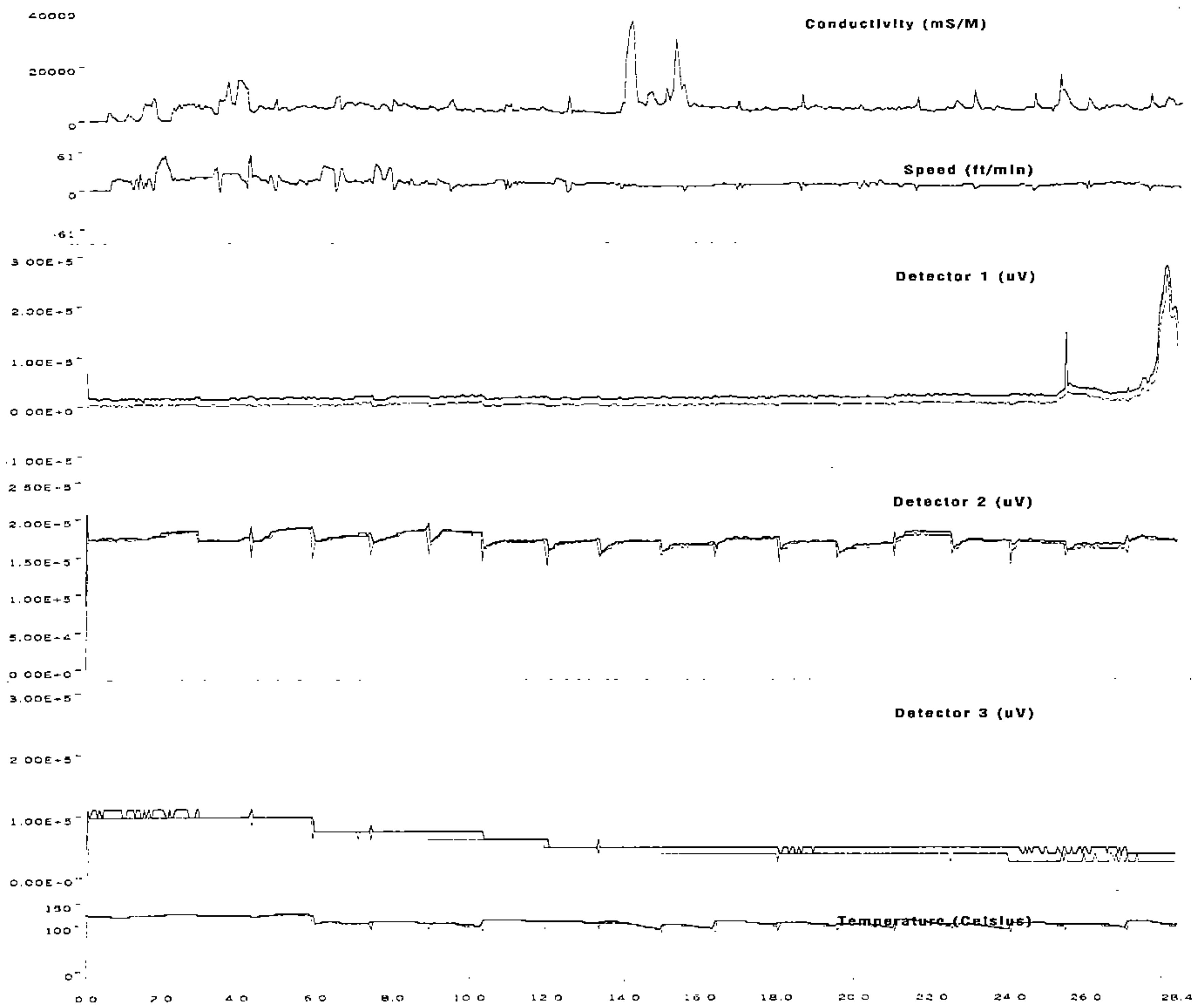

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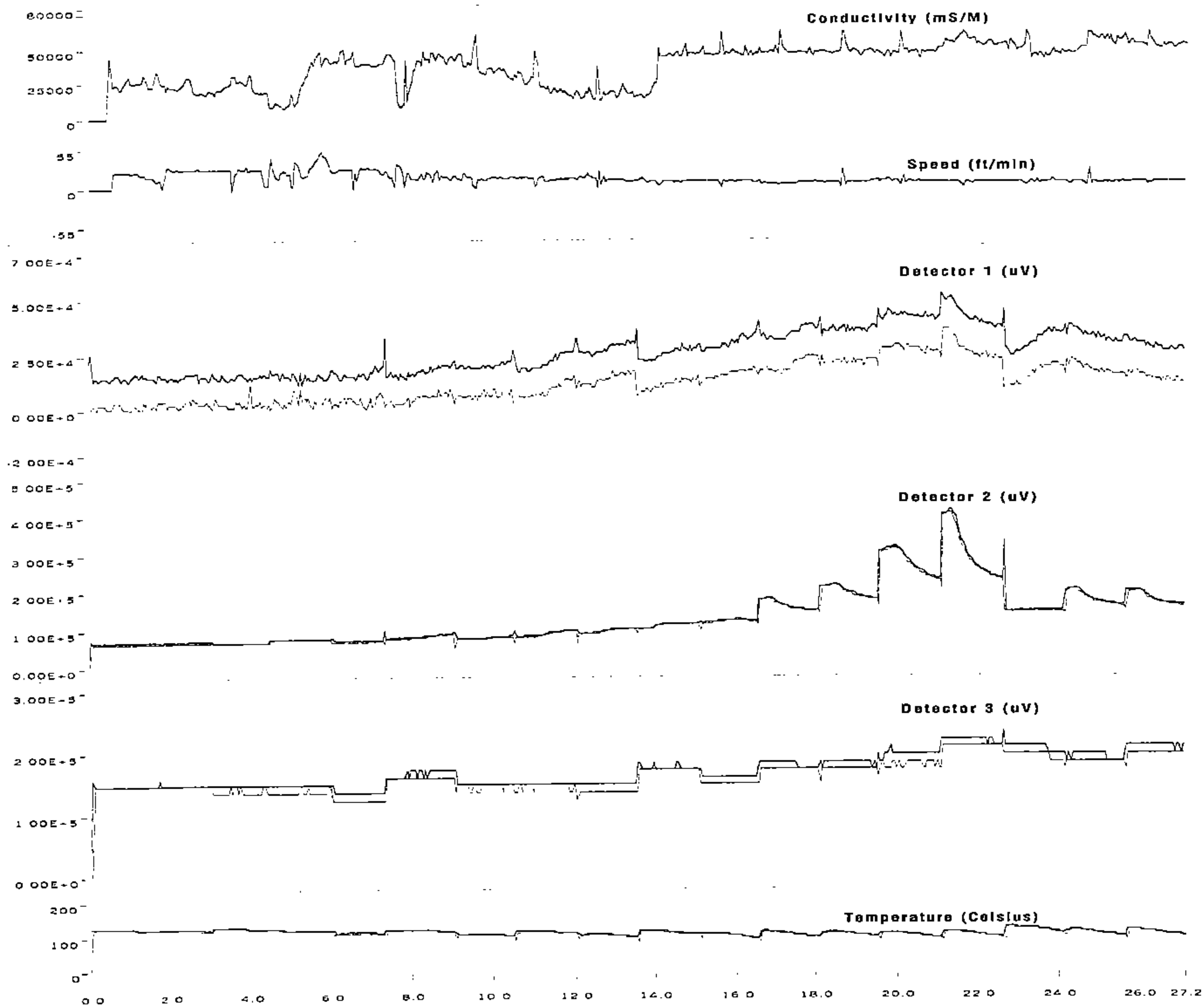

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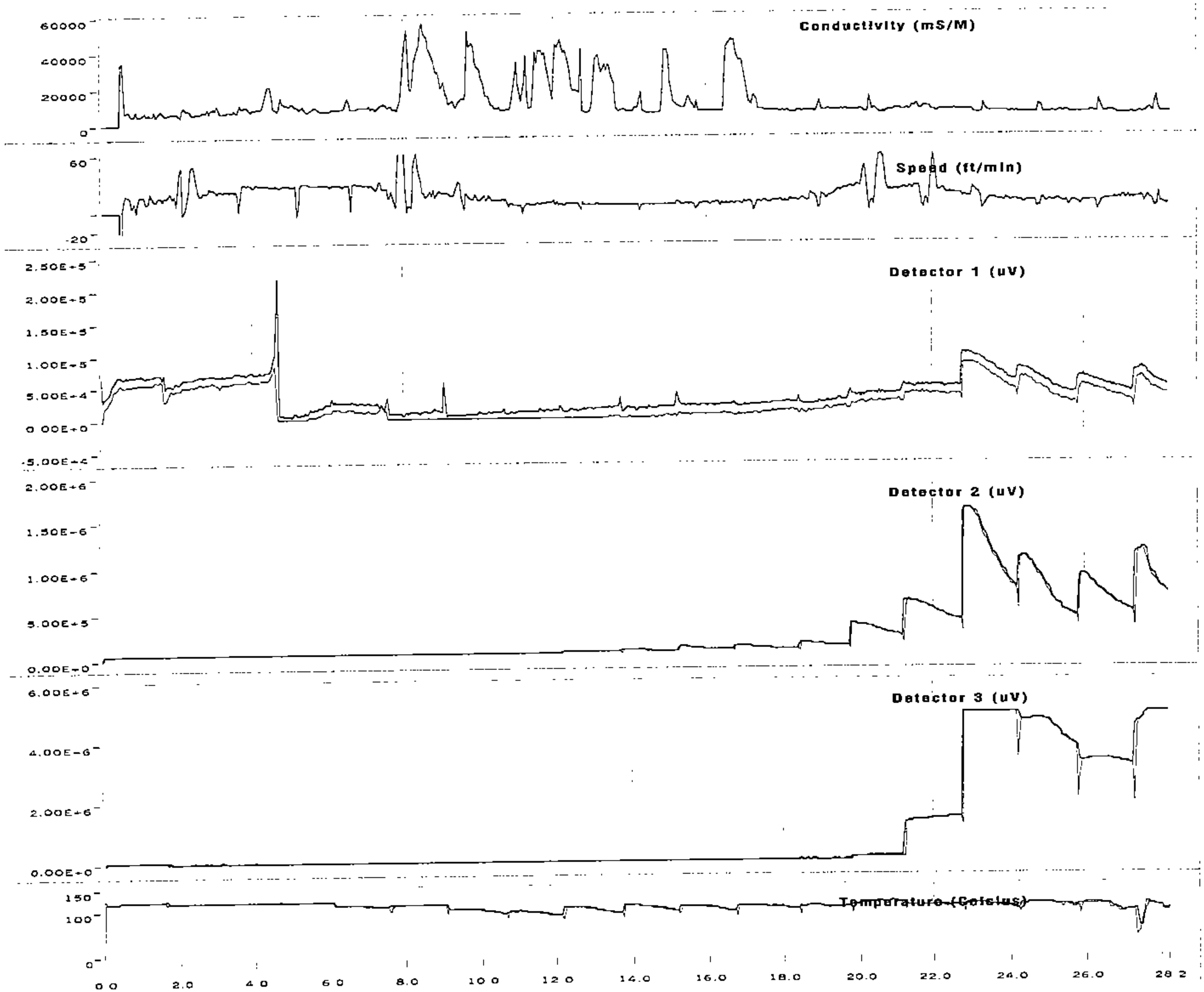

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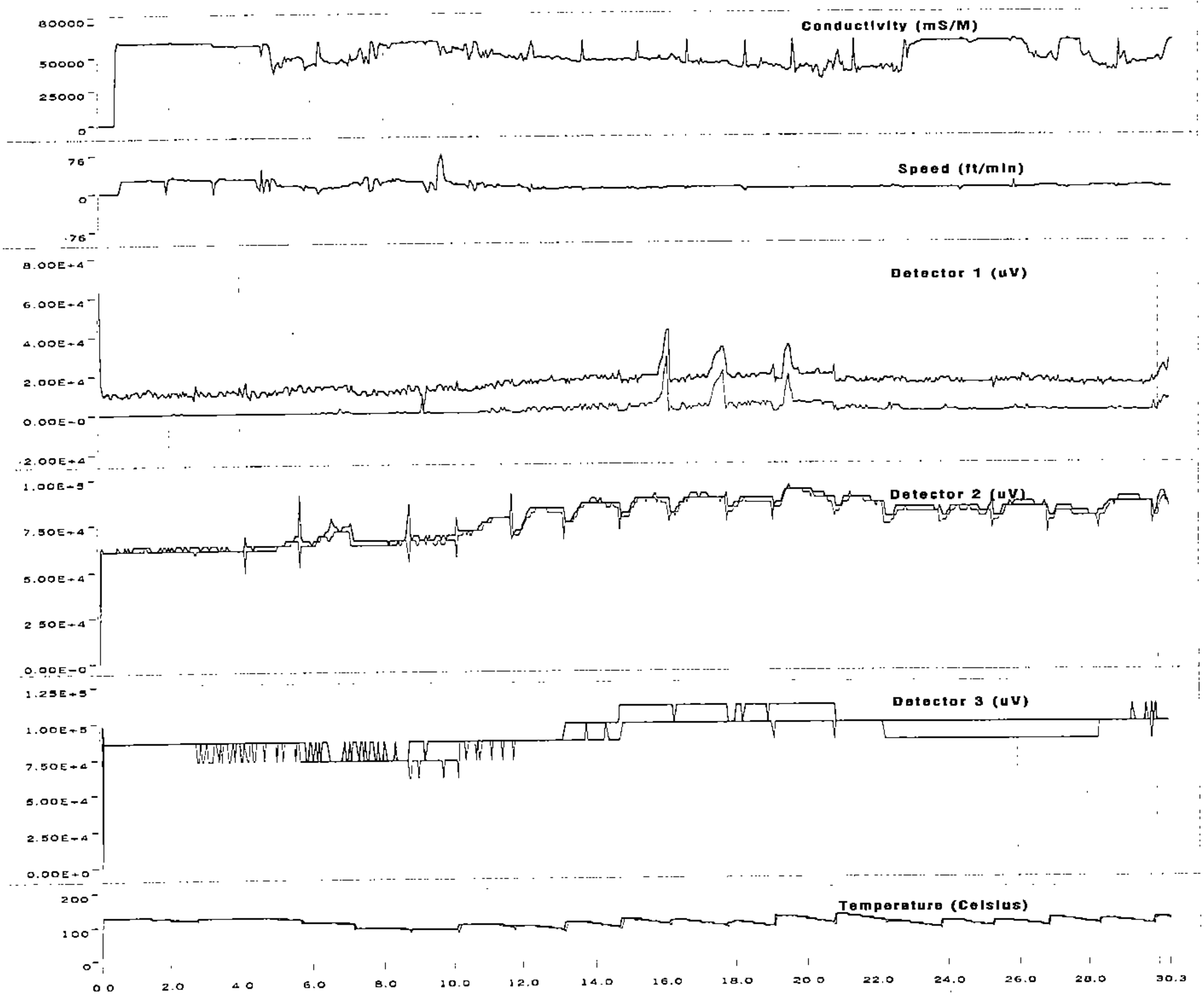

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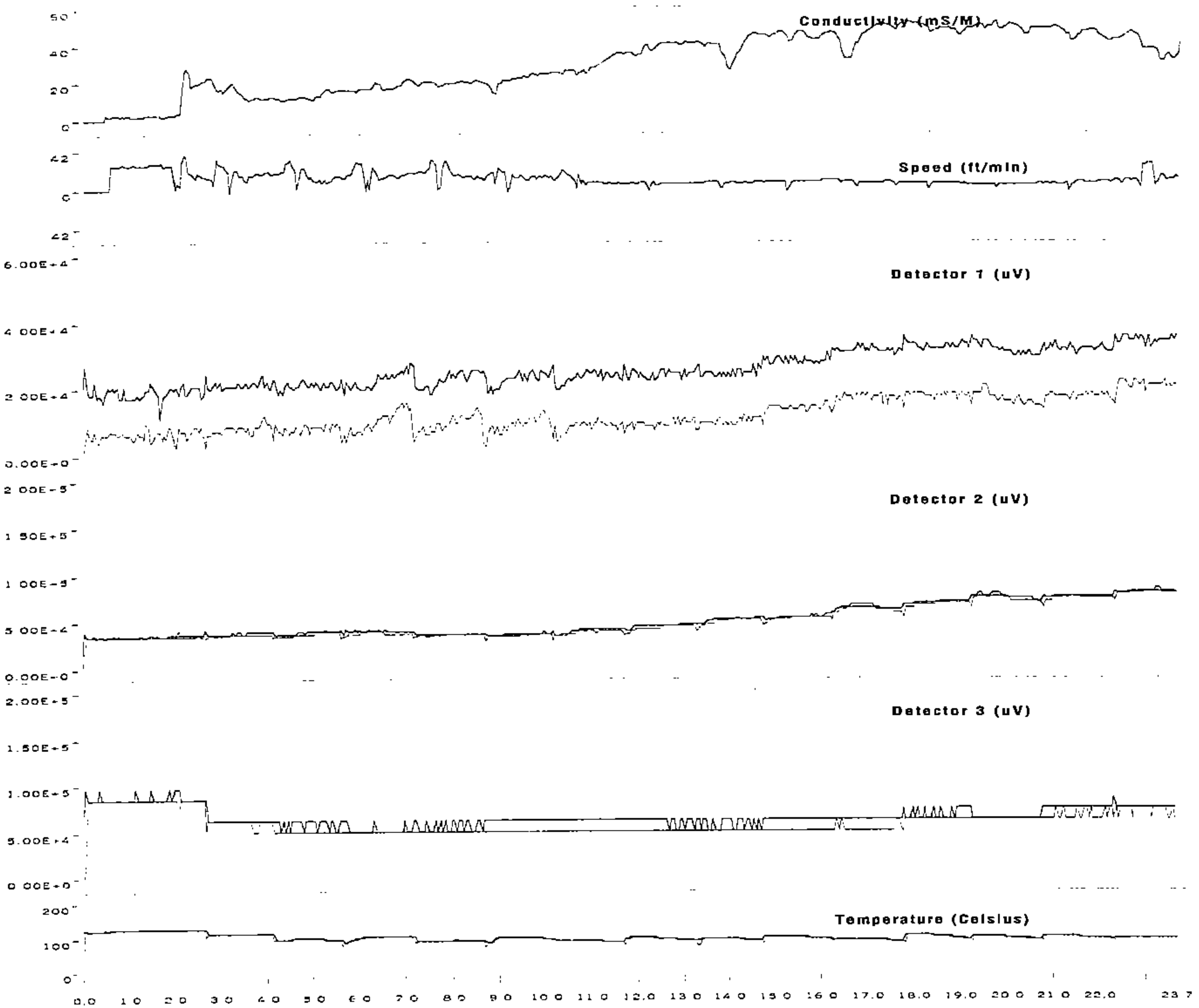

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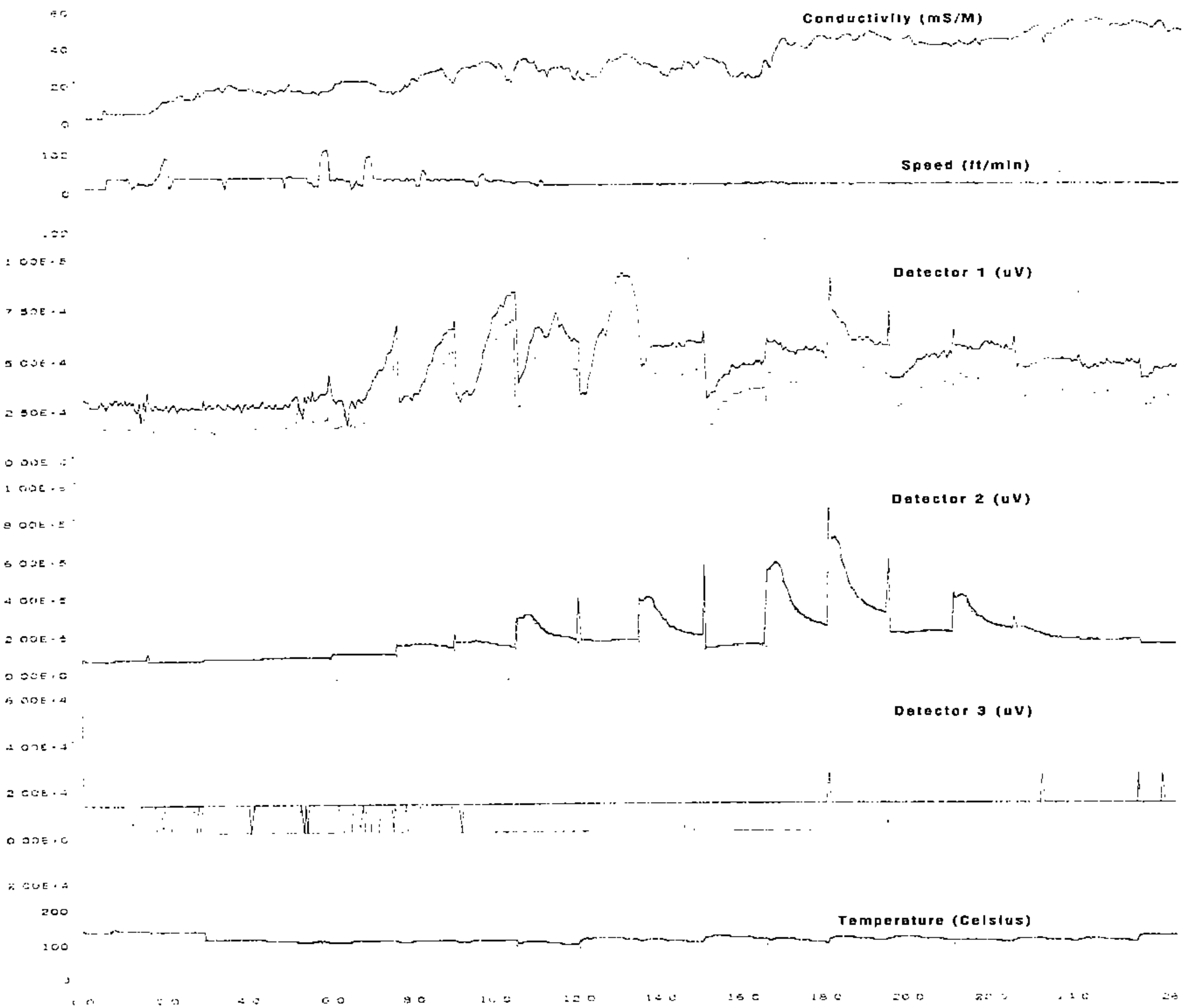

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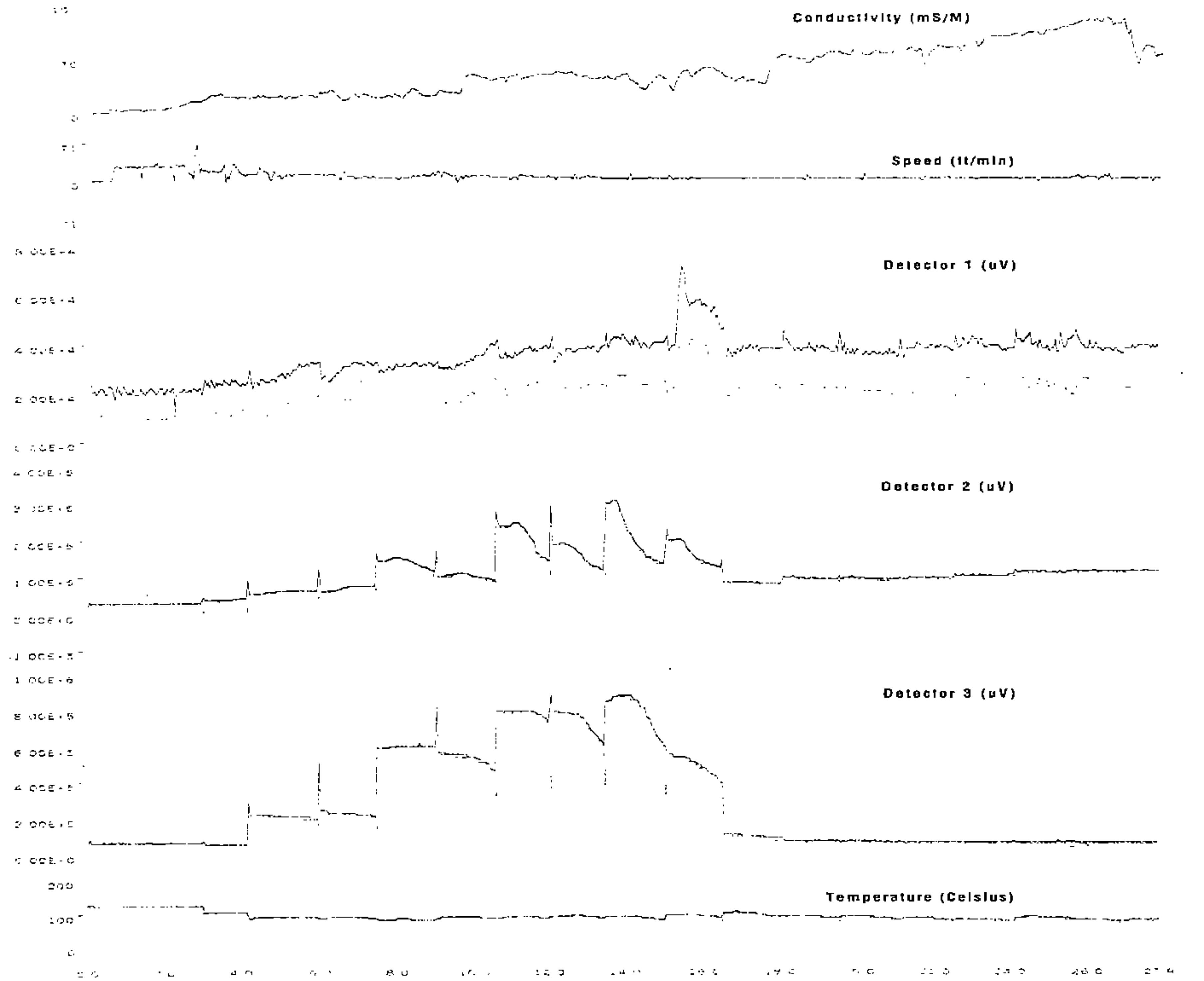

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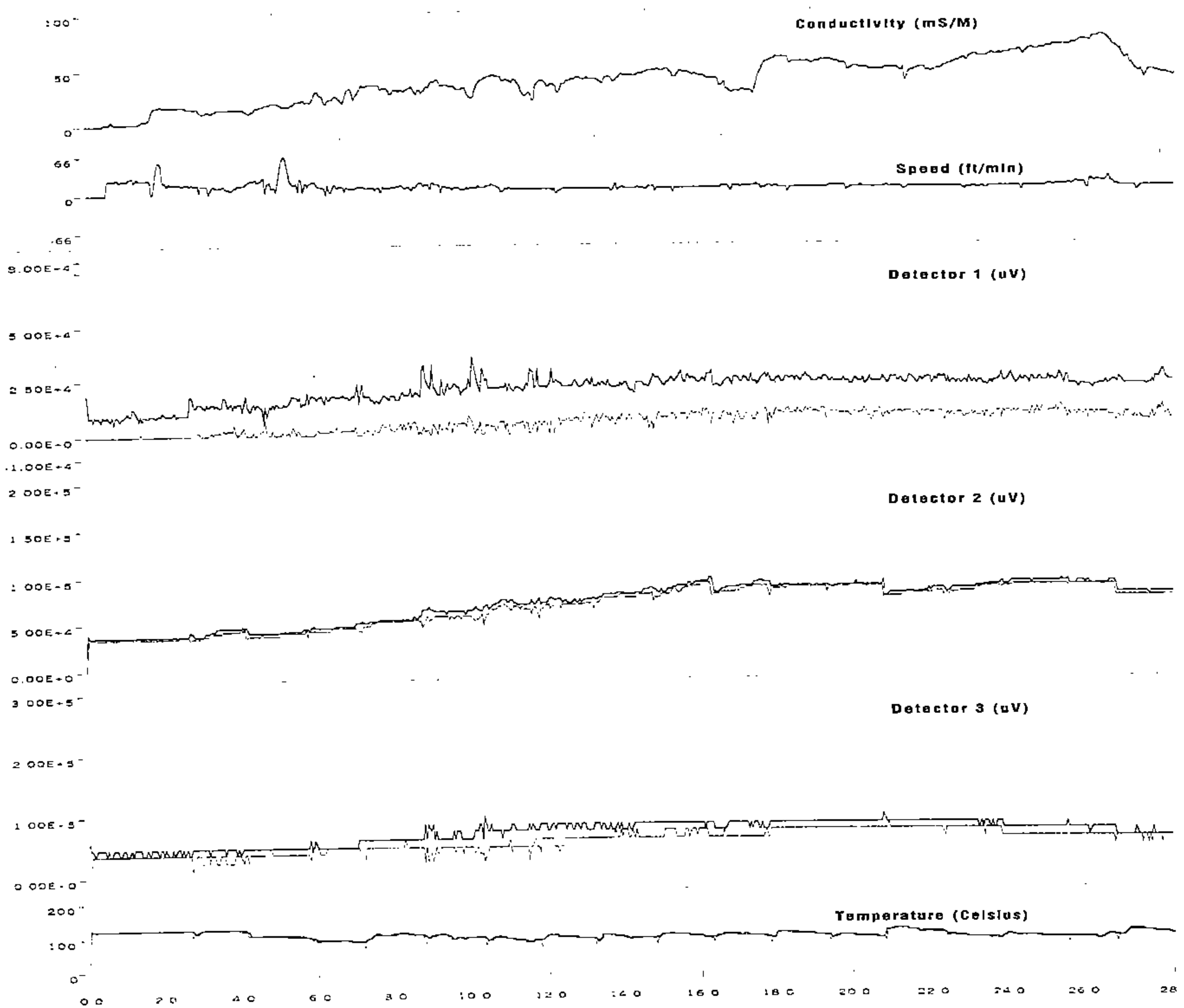

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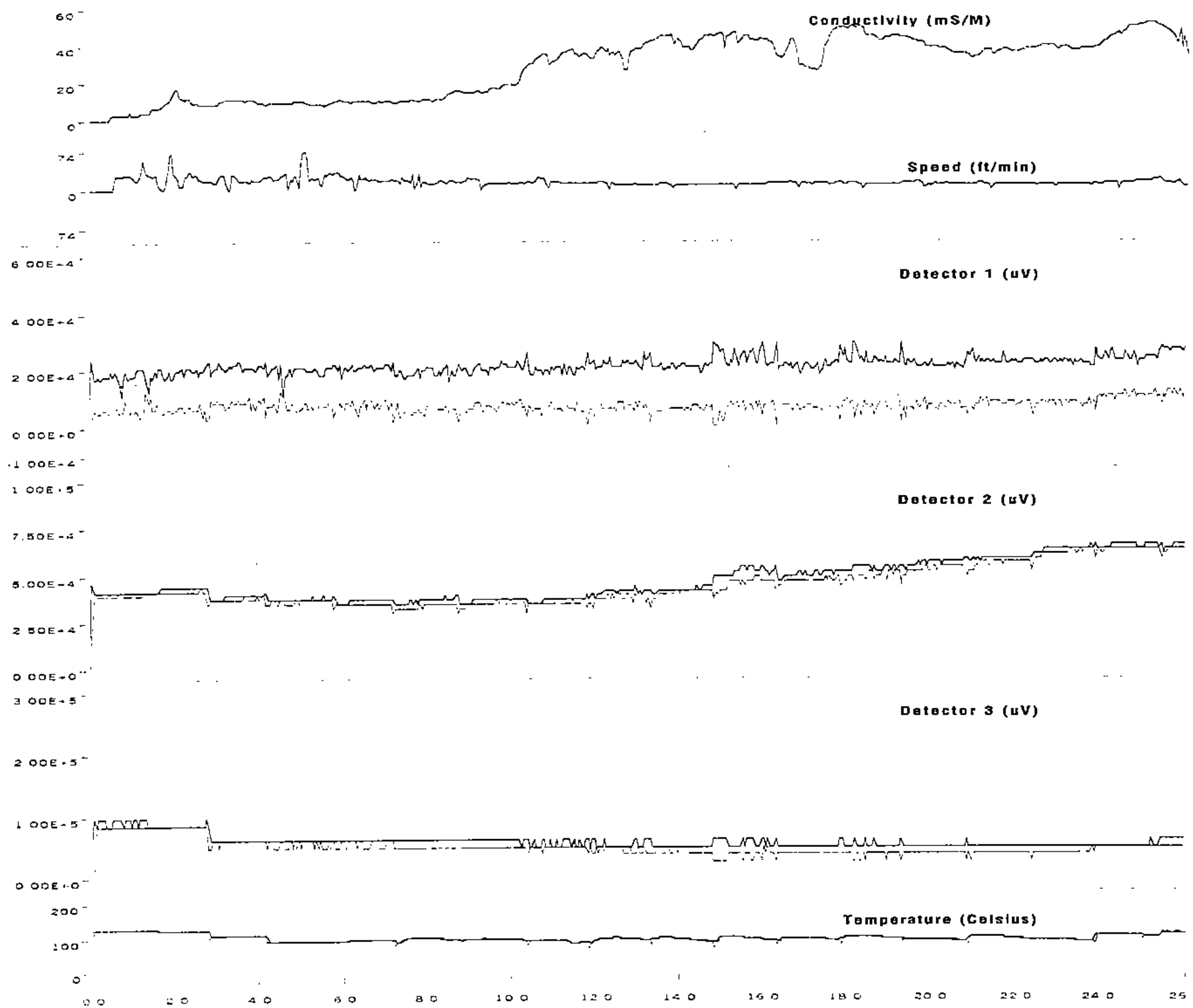

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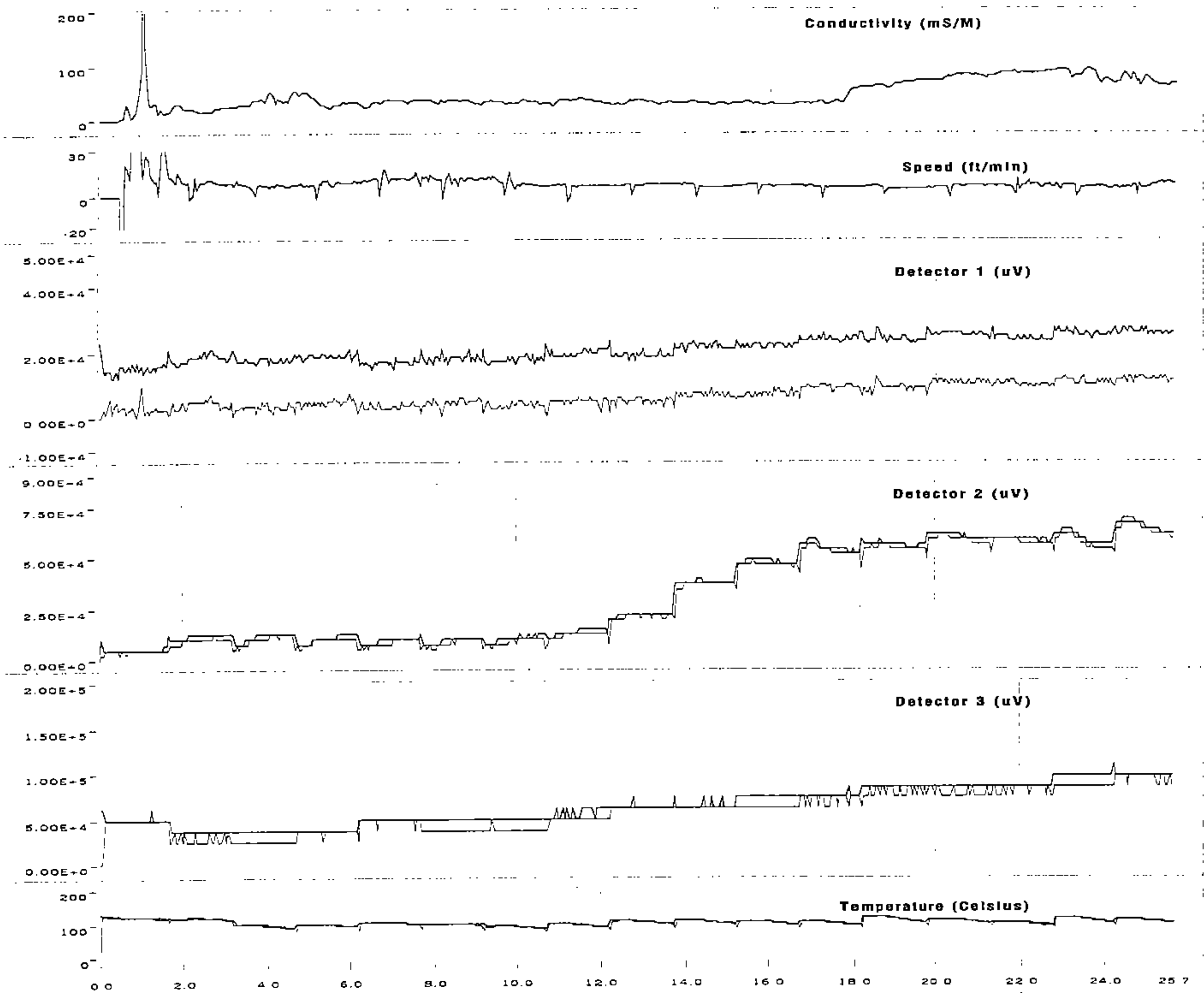

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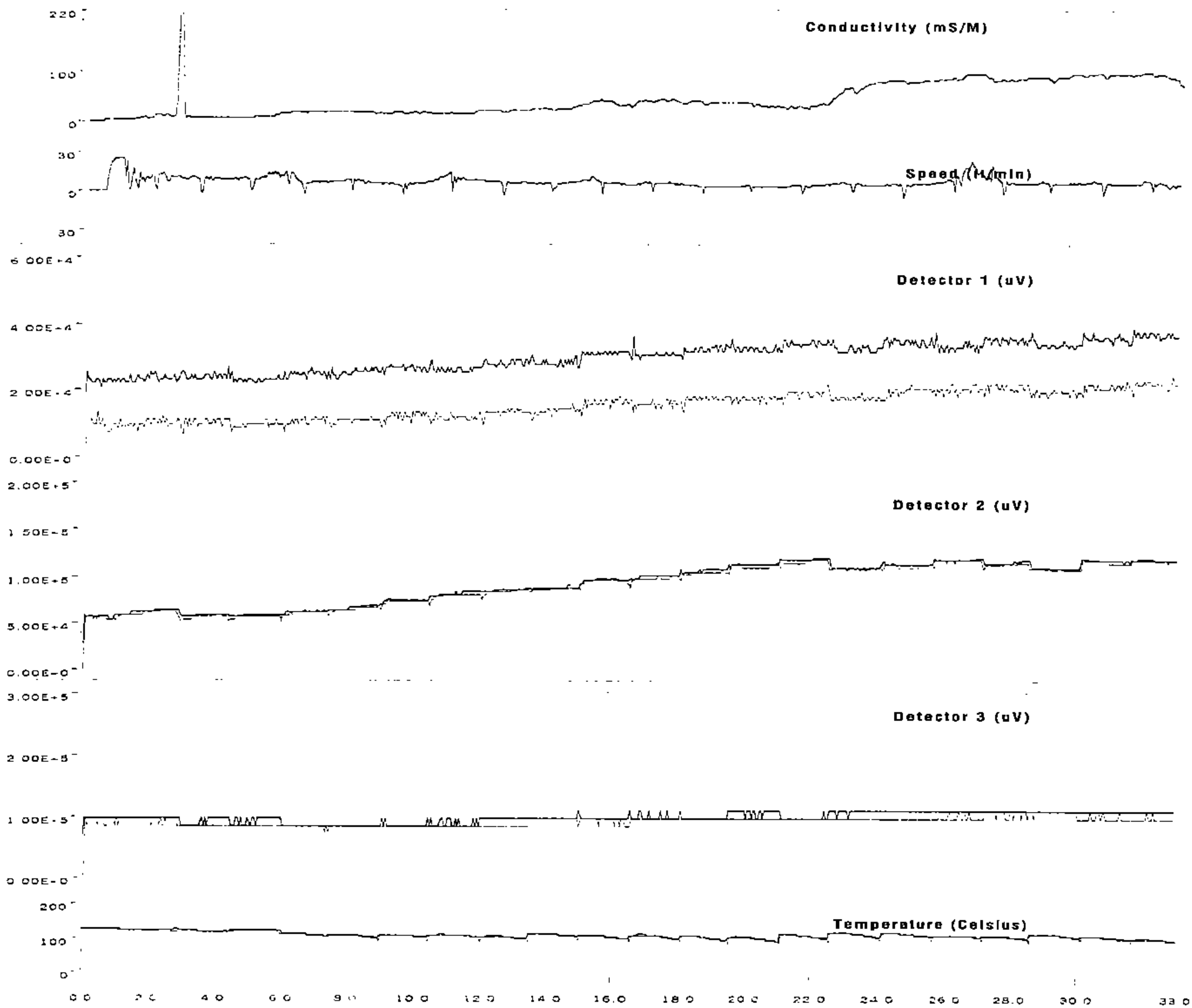

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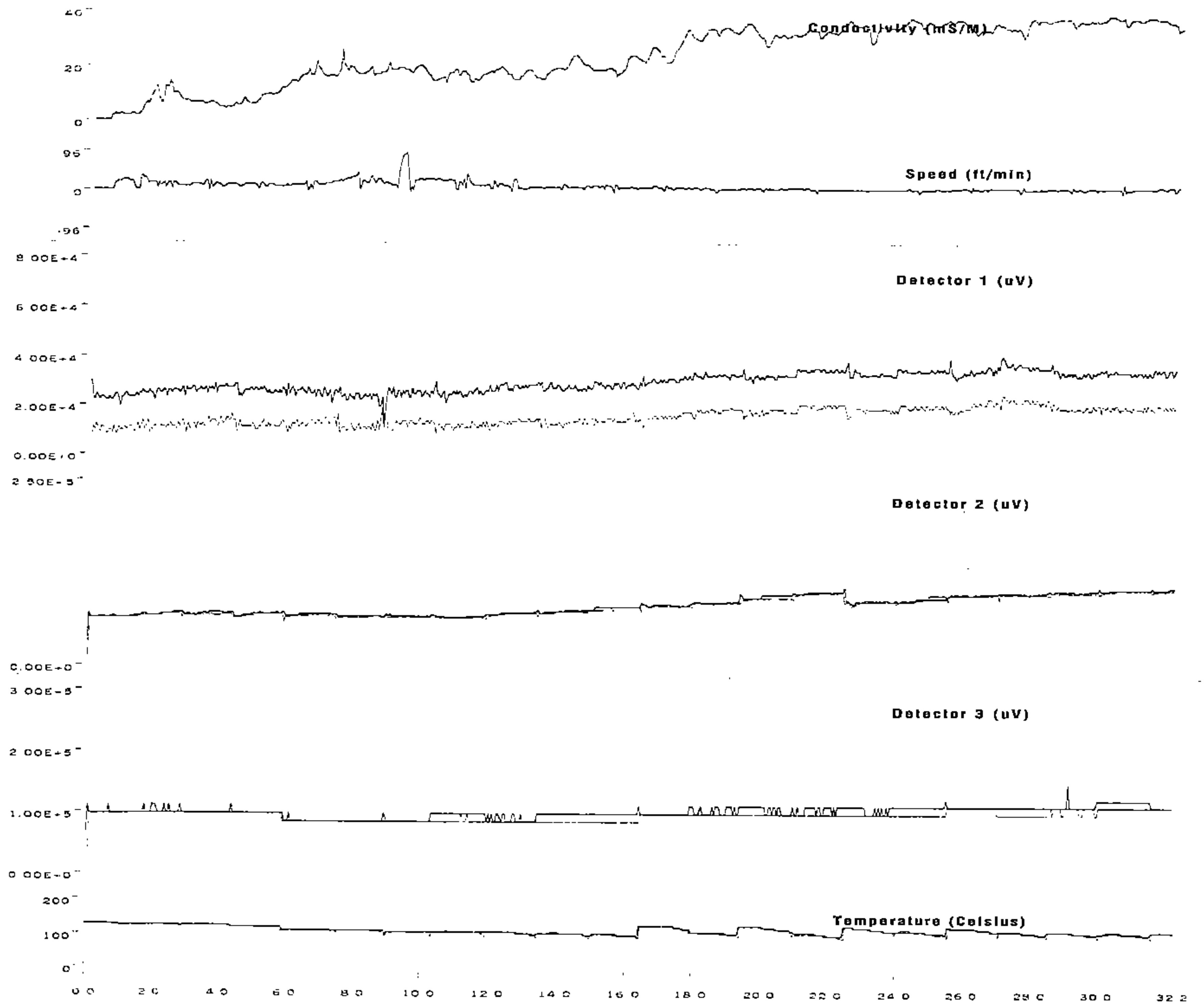

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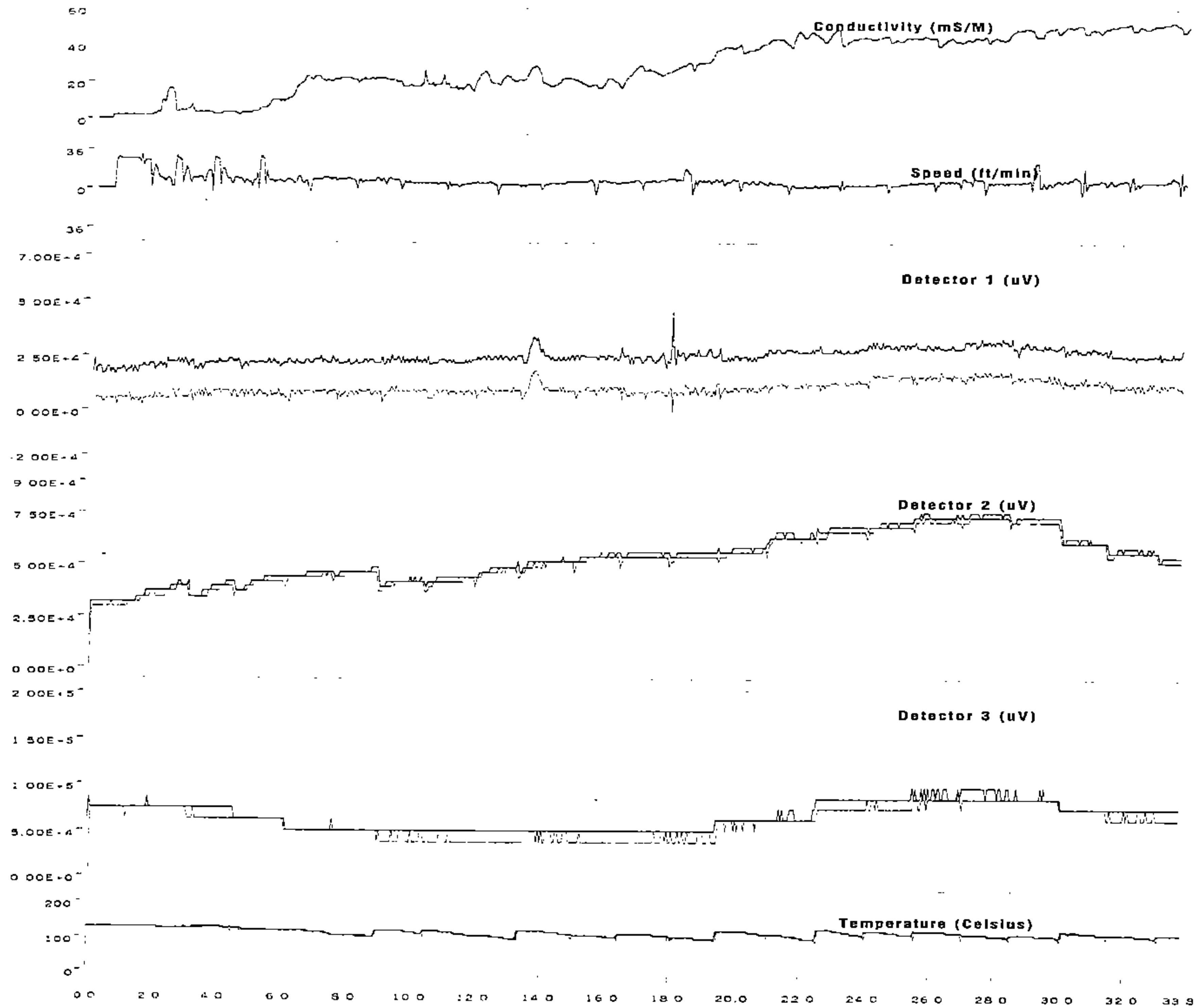

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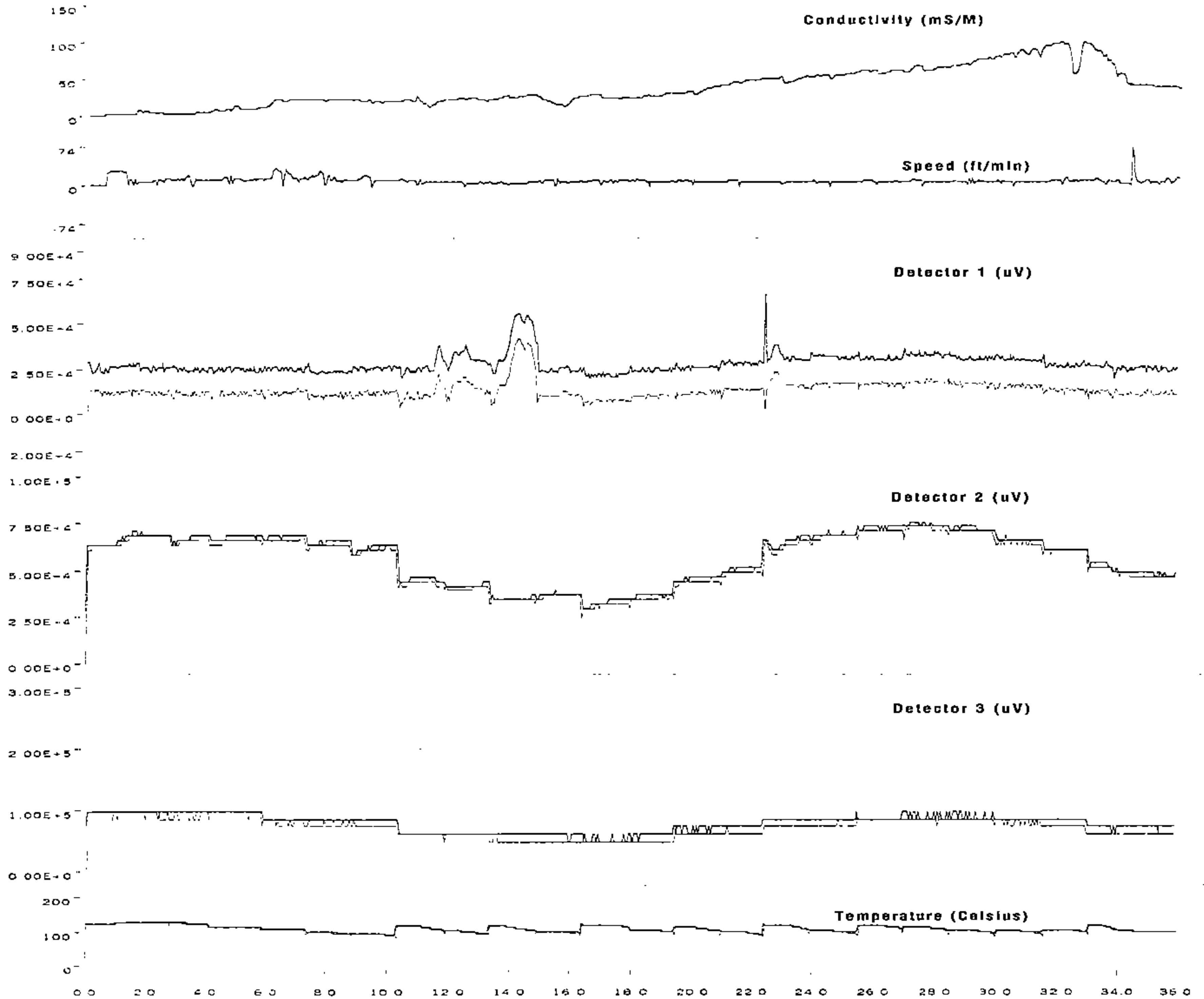

MIP LOGS
REPROCESSED FOR STANDARDIZED SCALE

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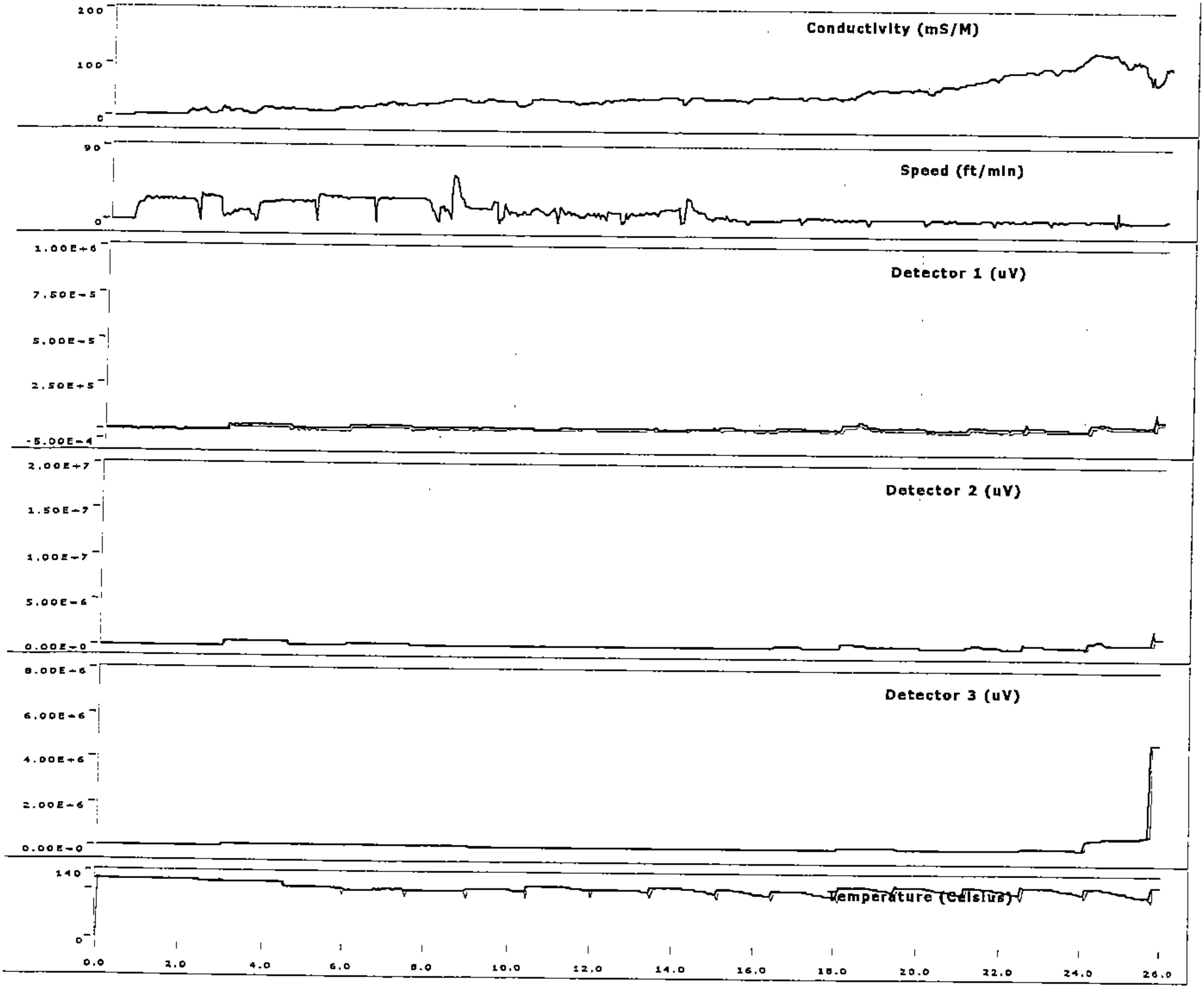

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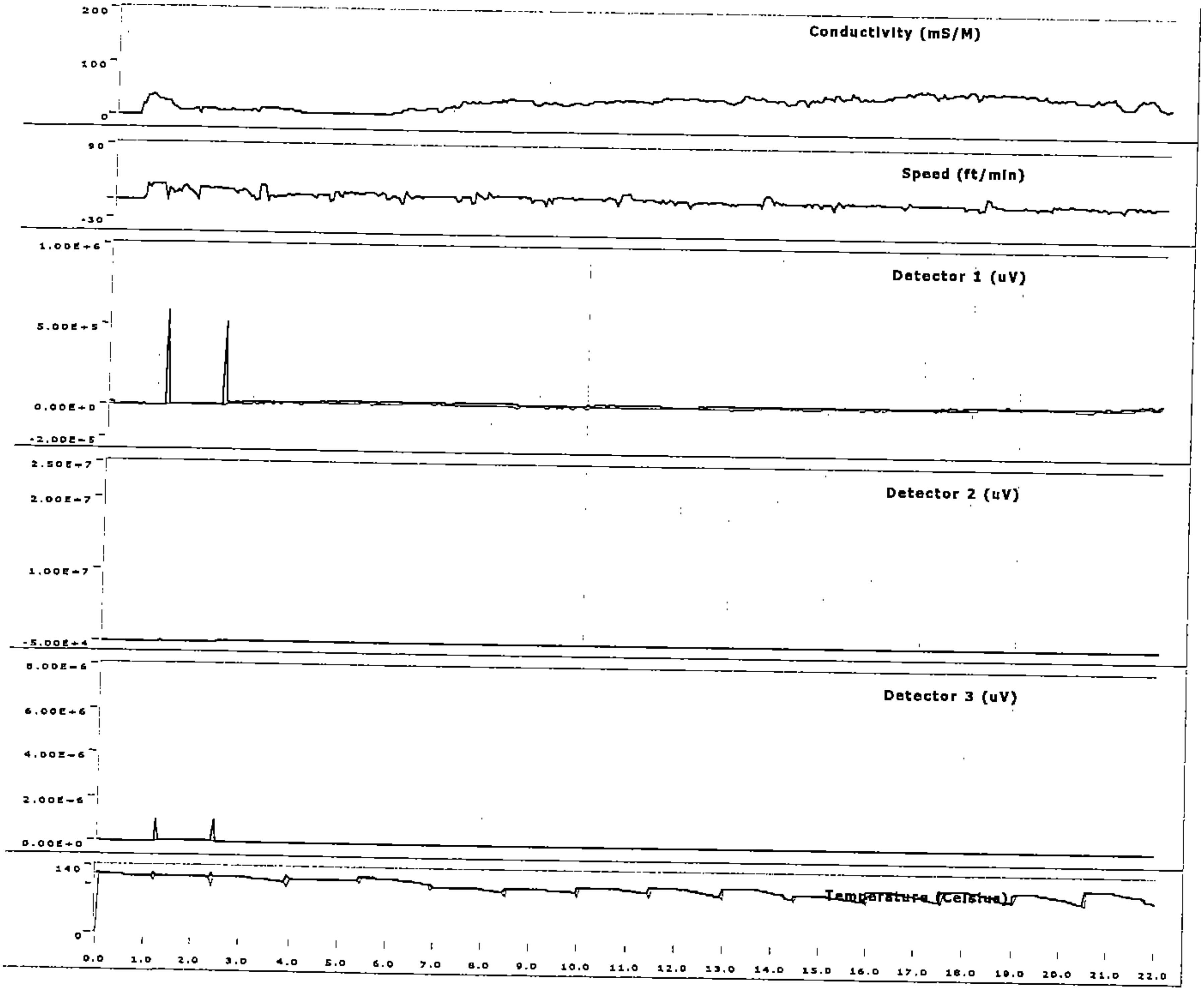

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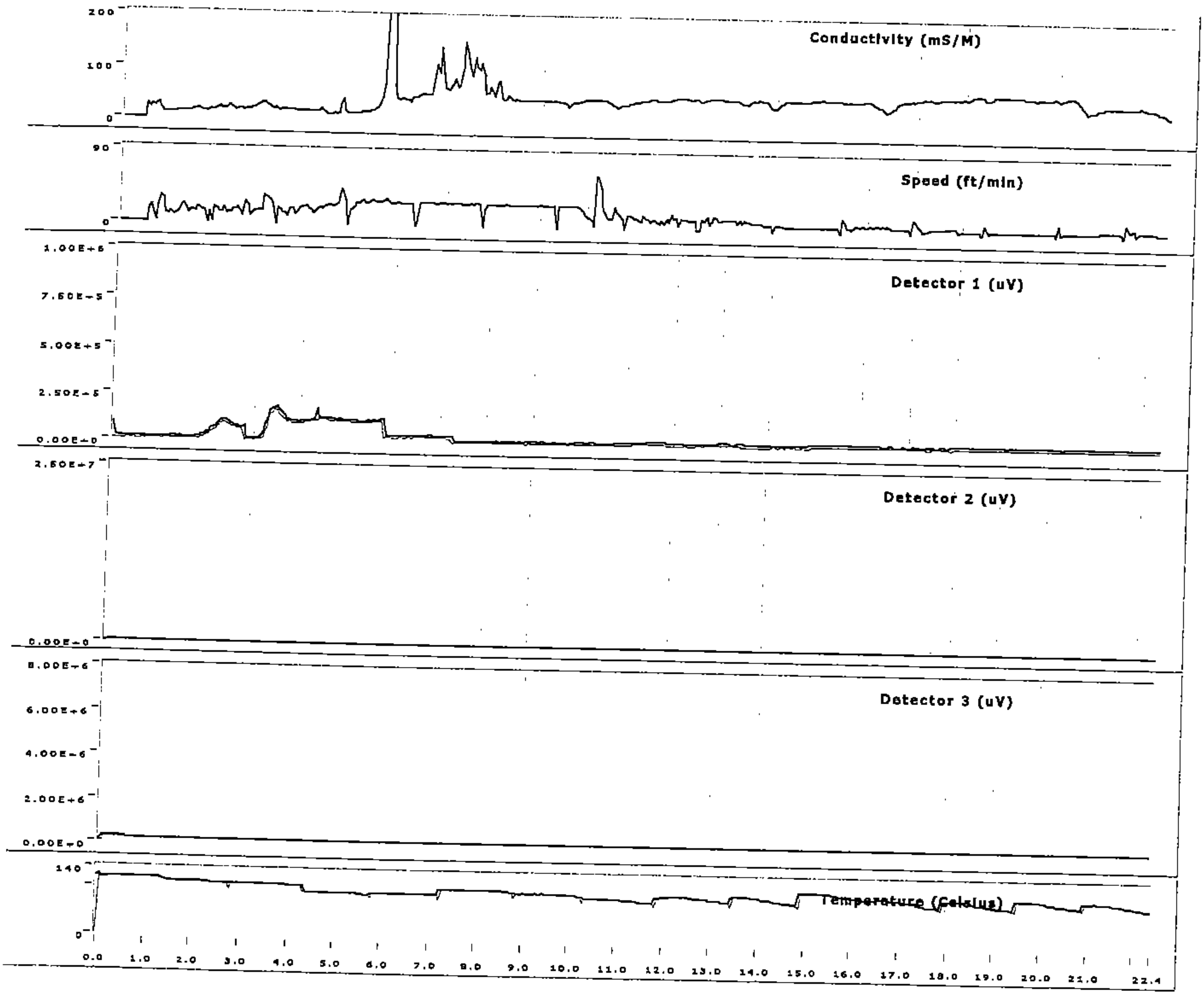

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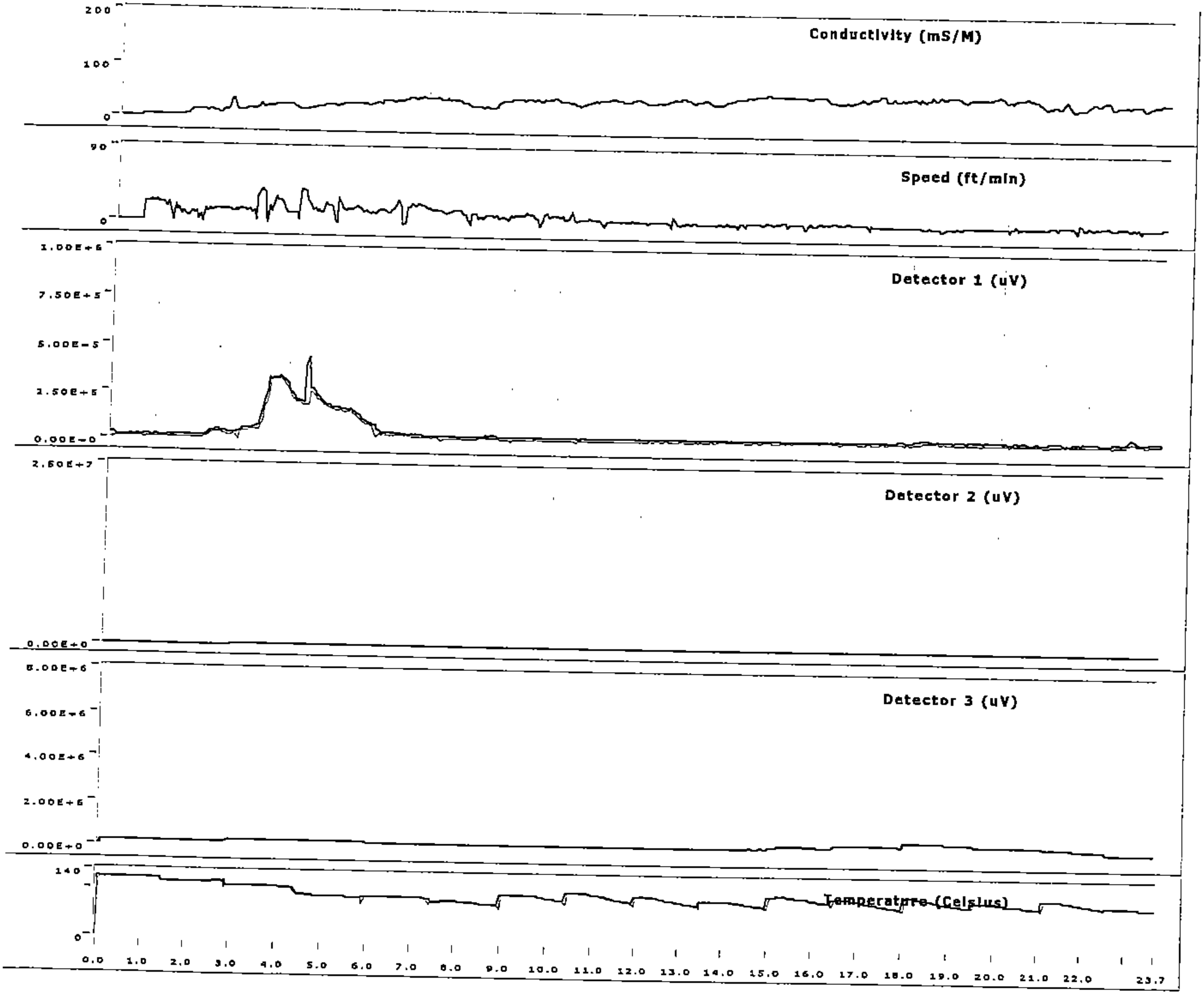

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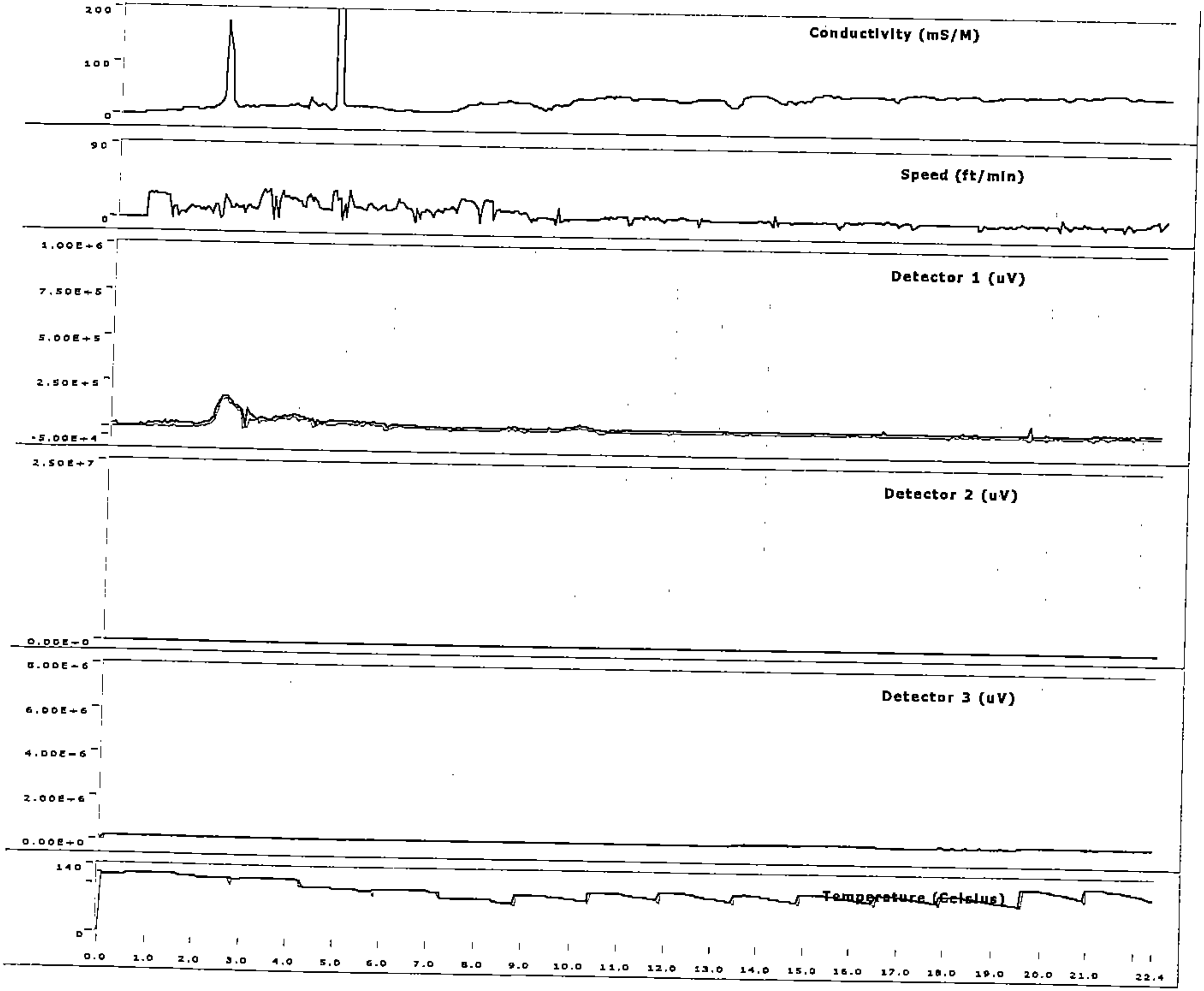

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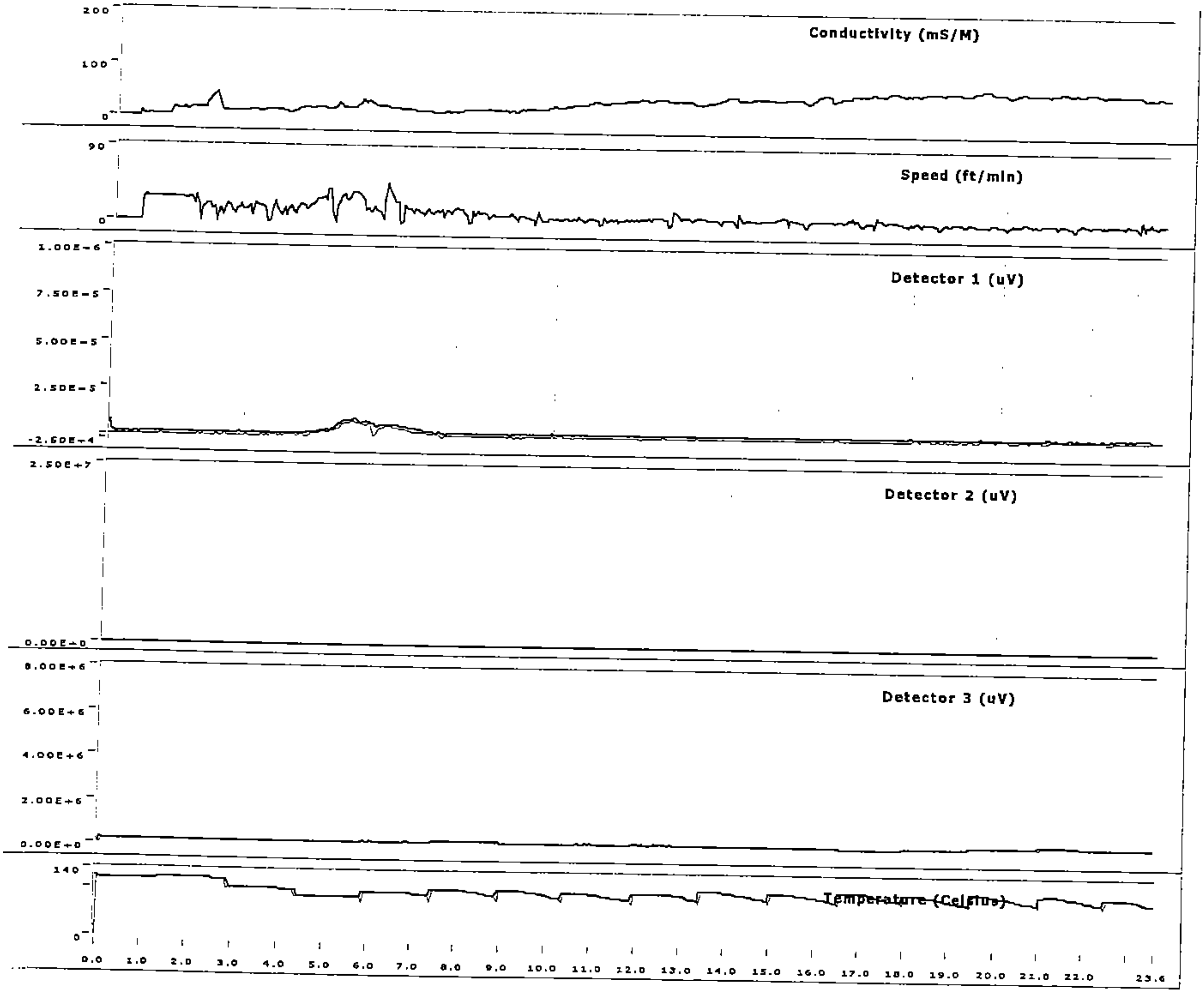

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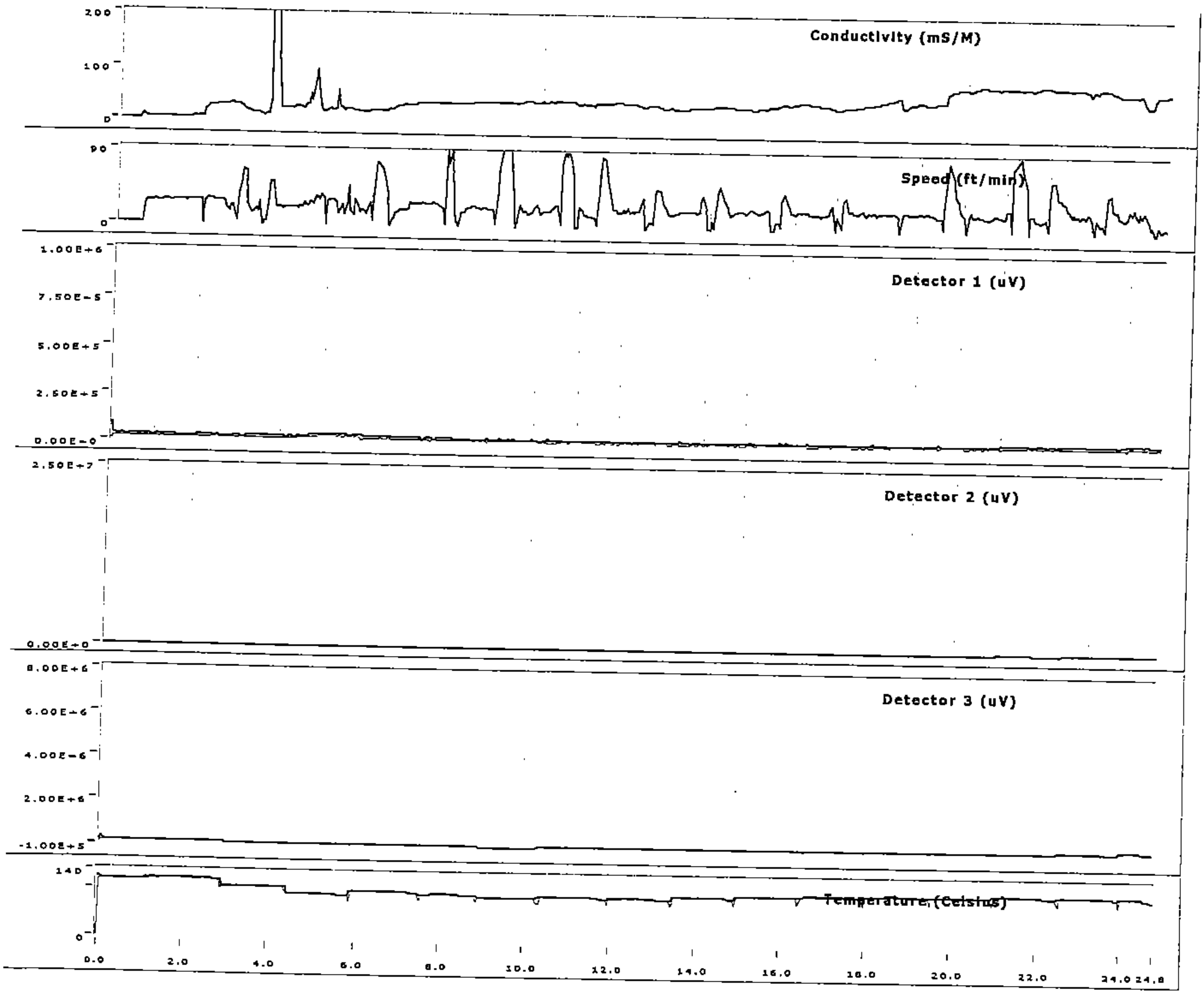

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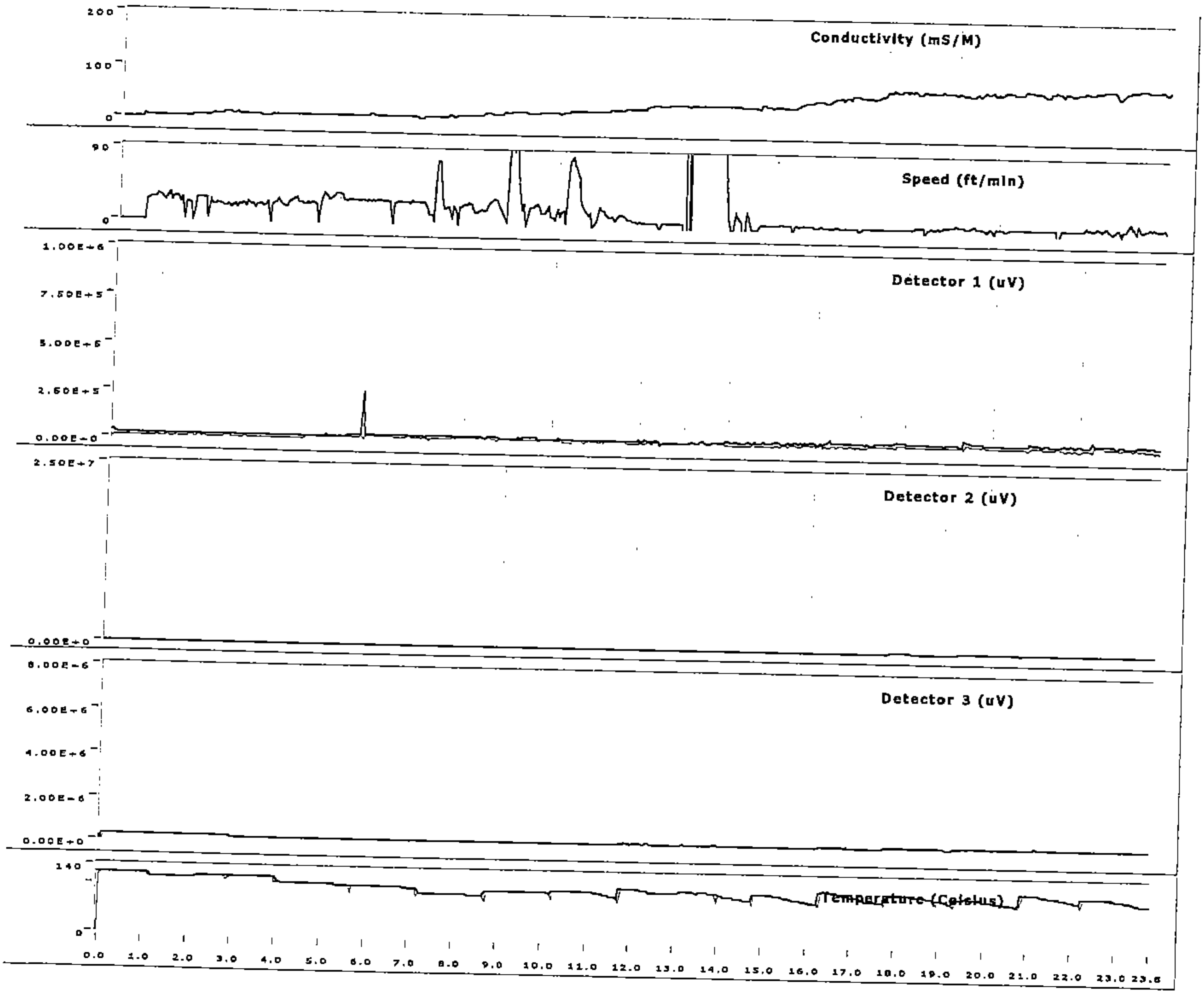

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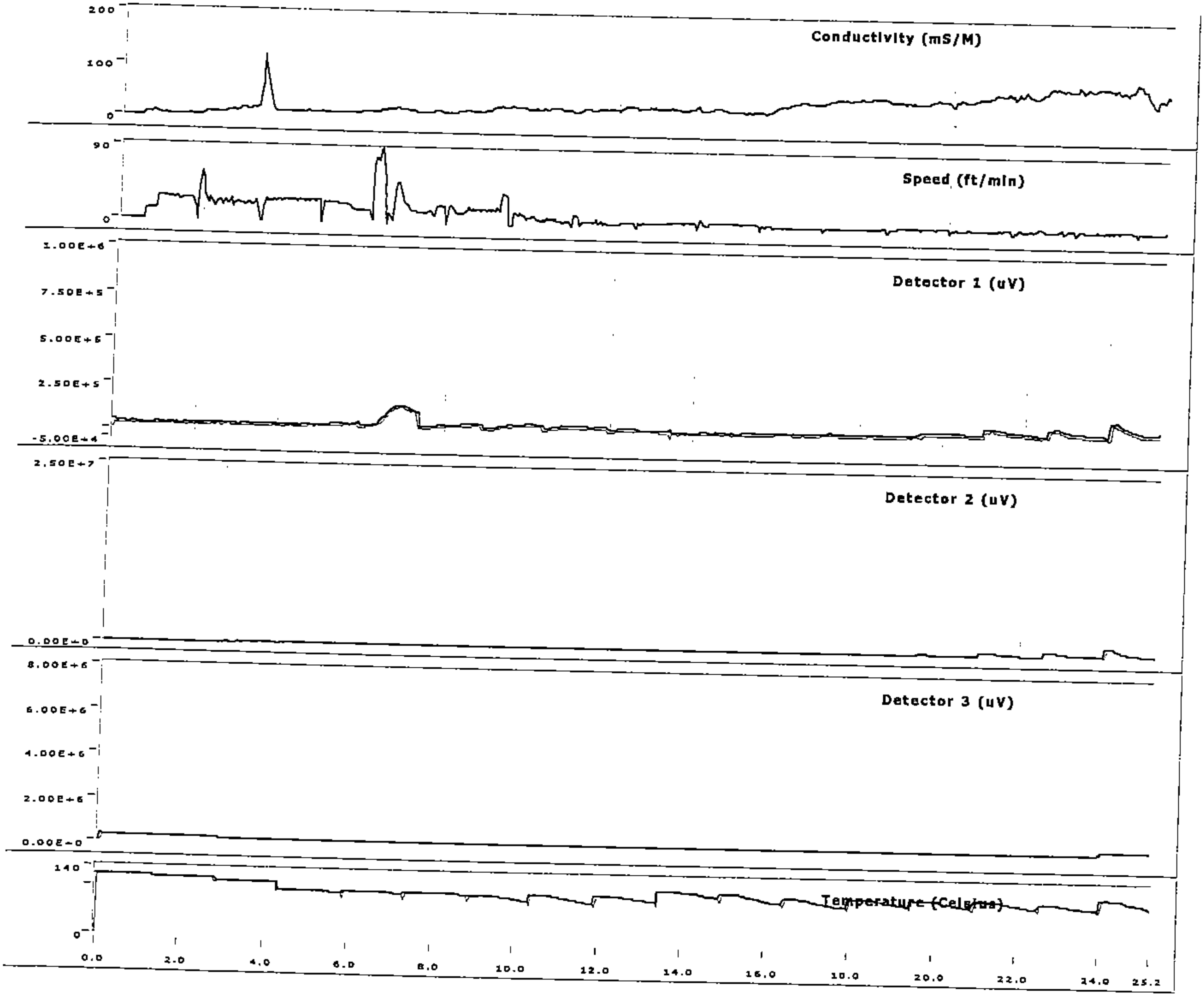

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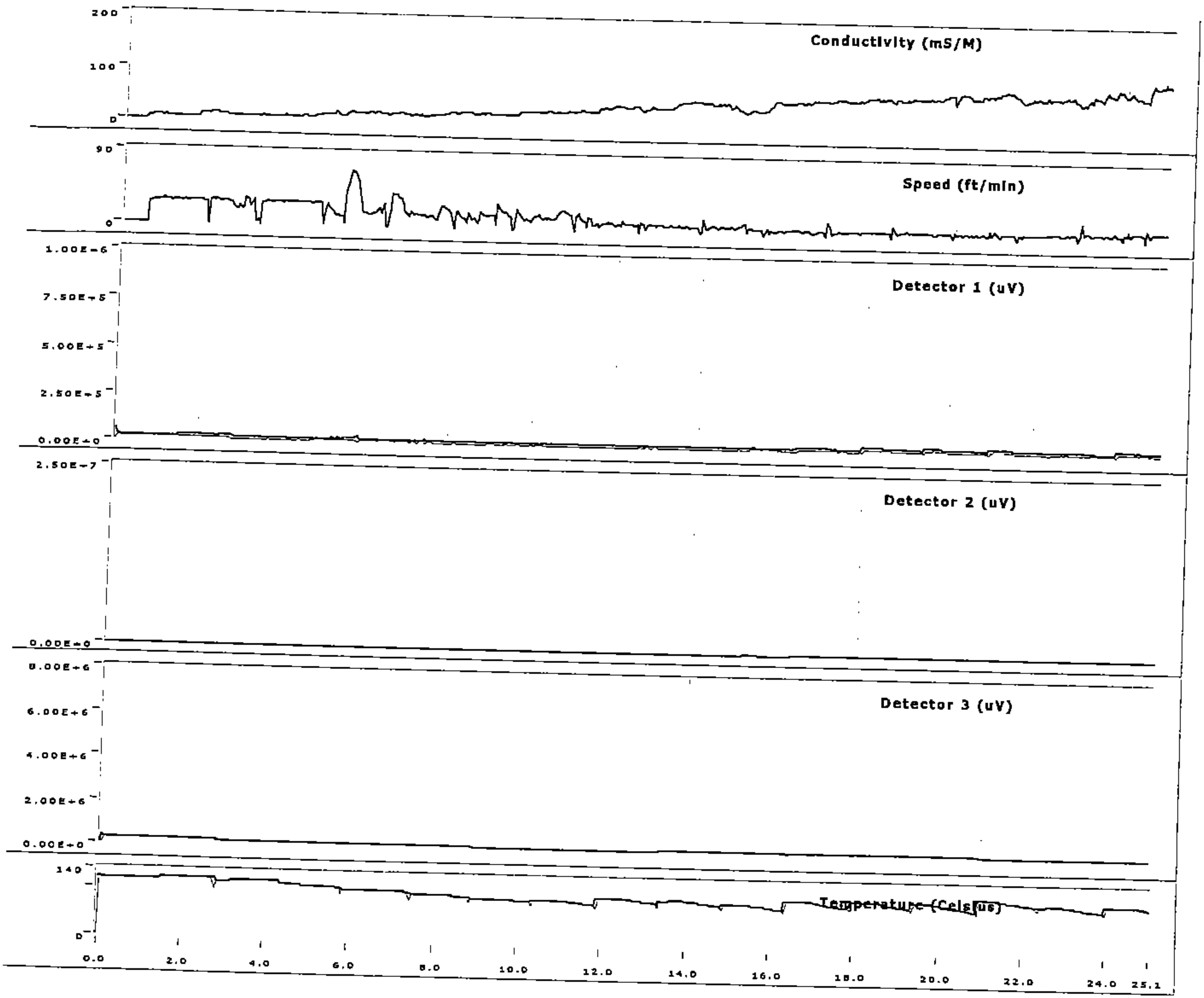

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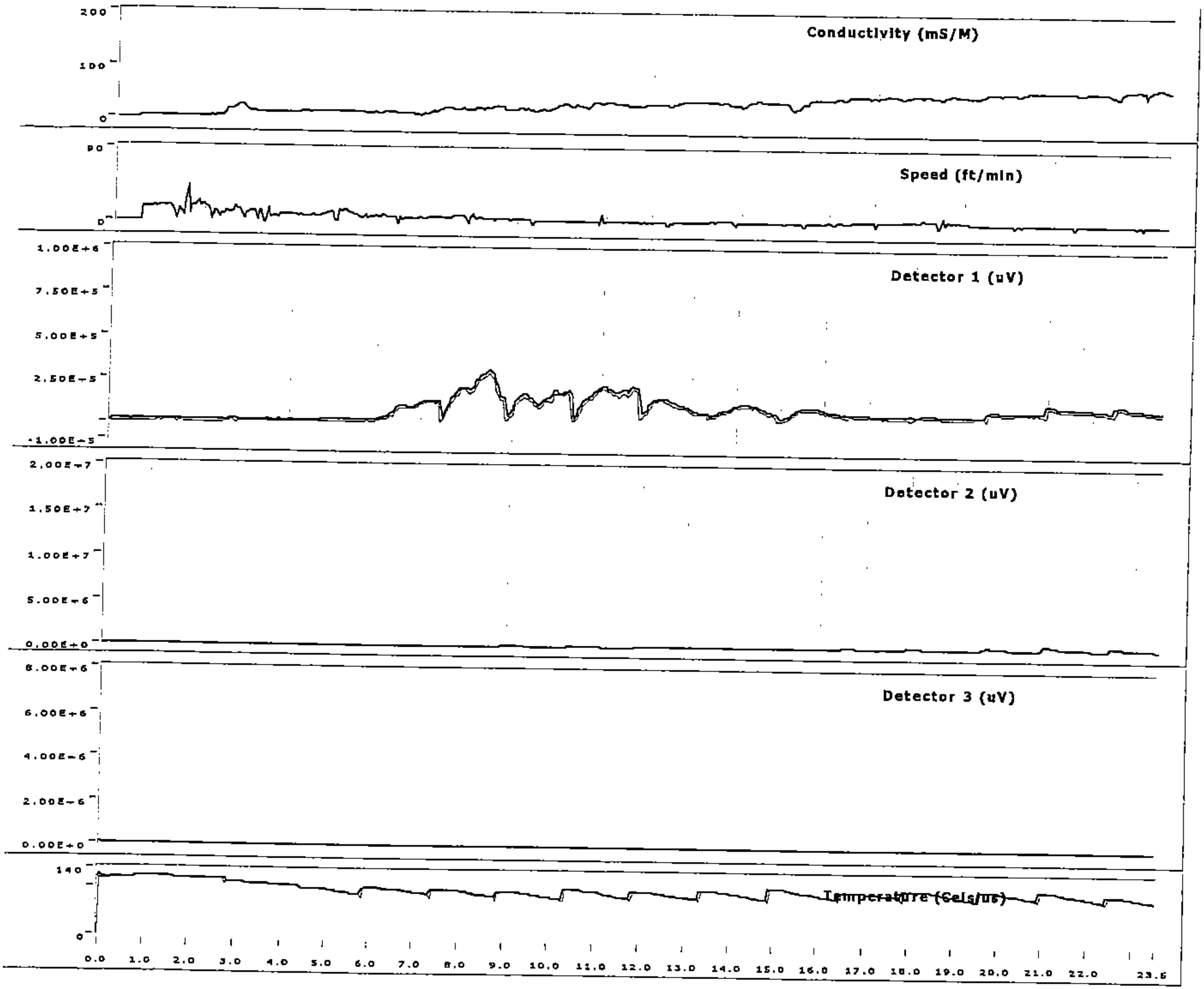

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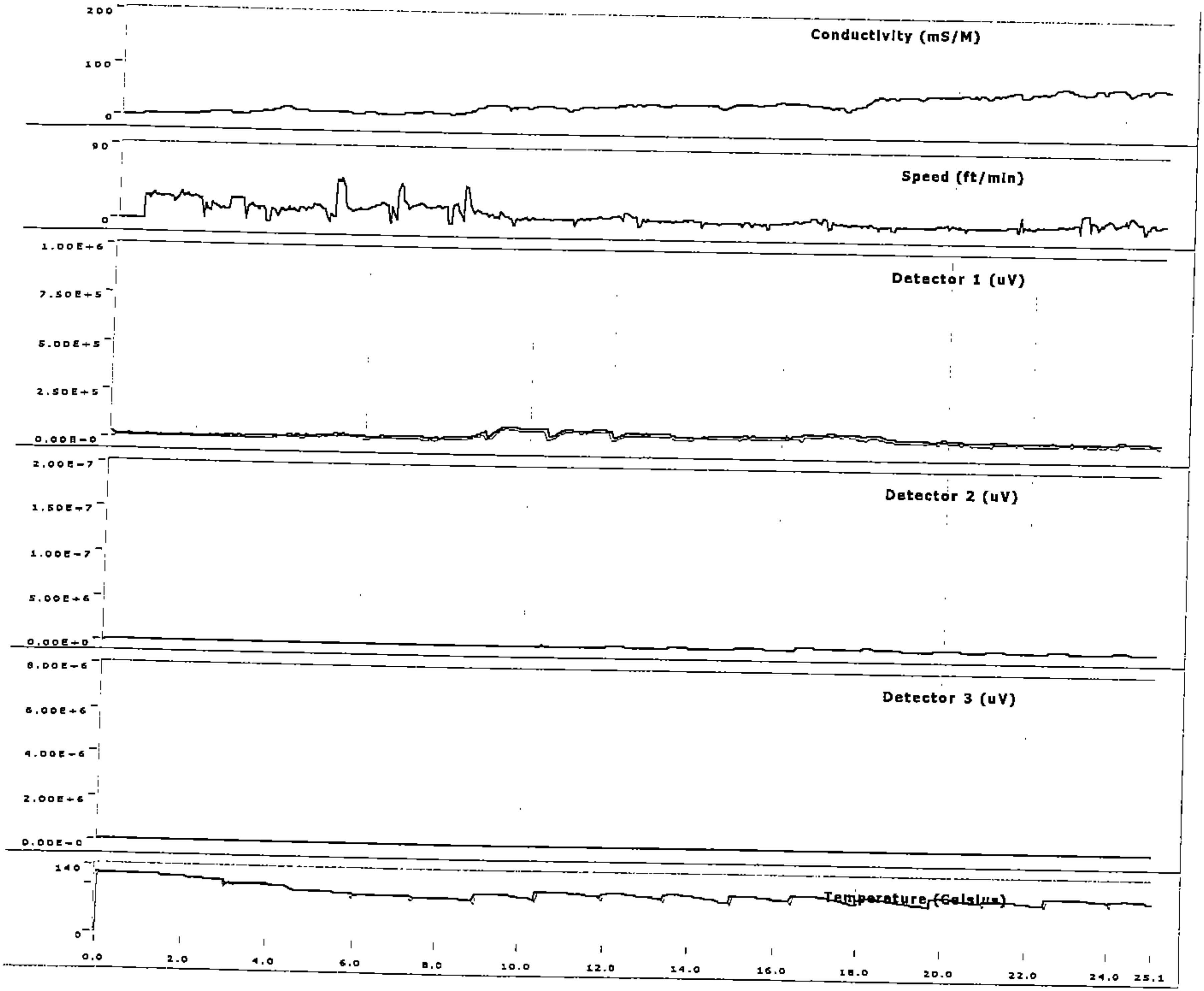

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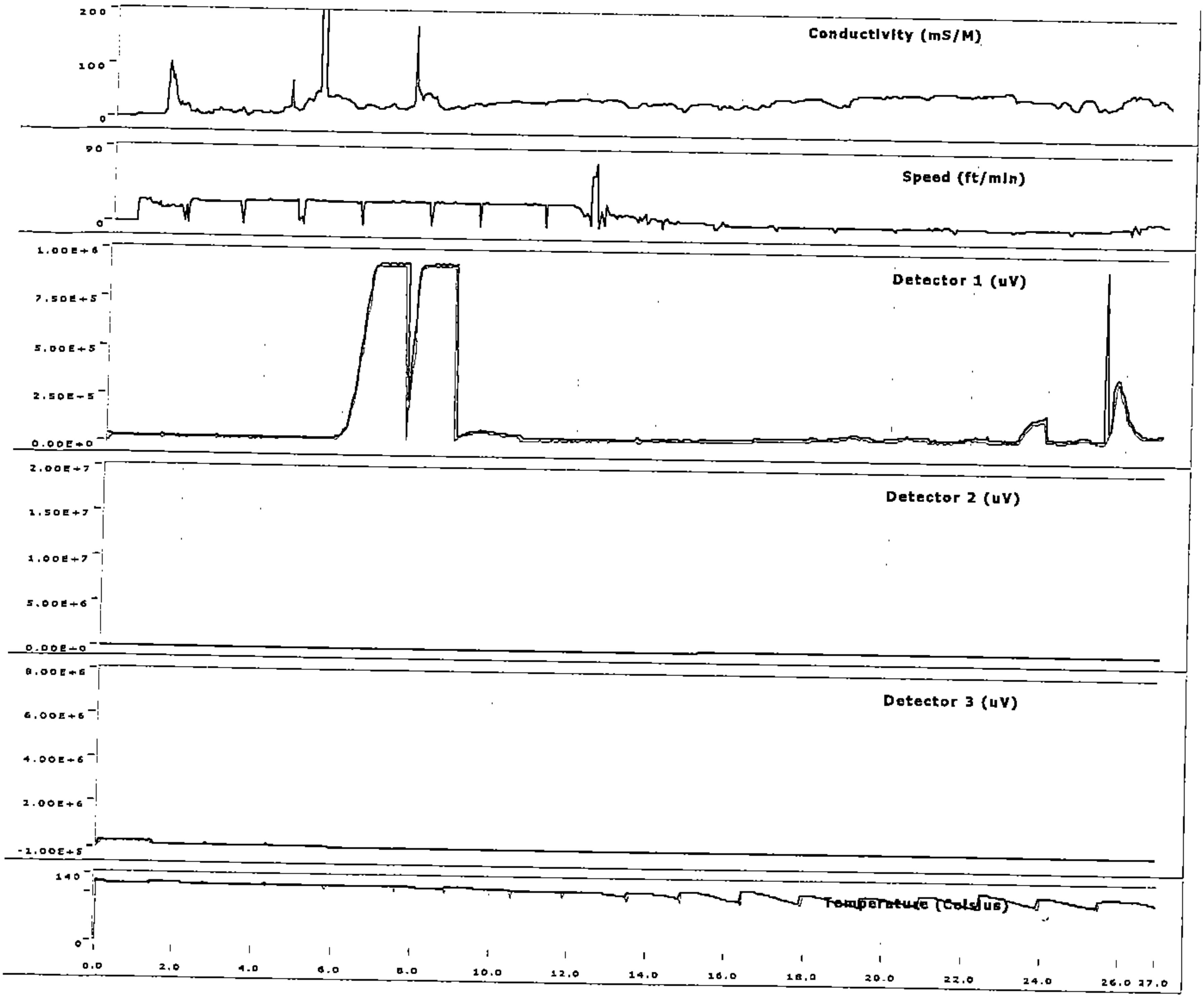

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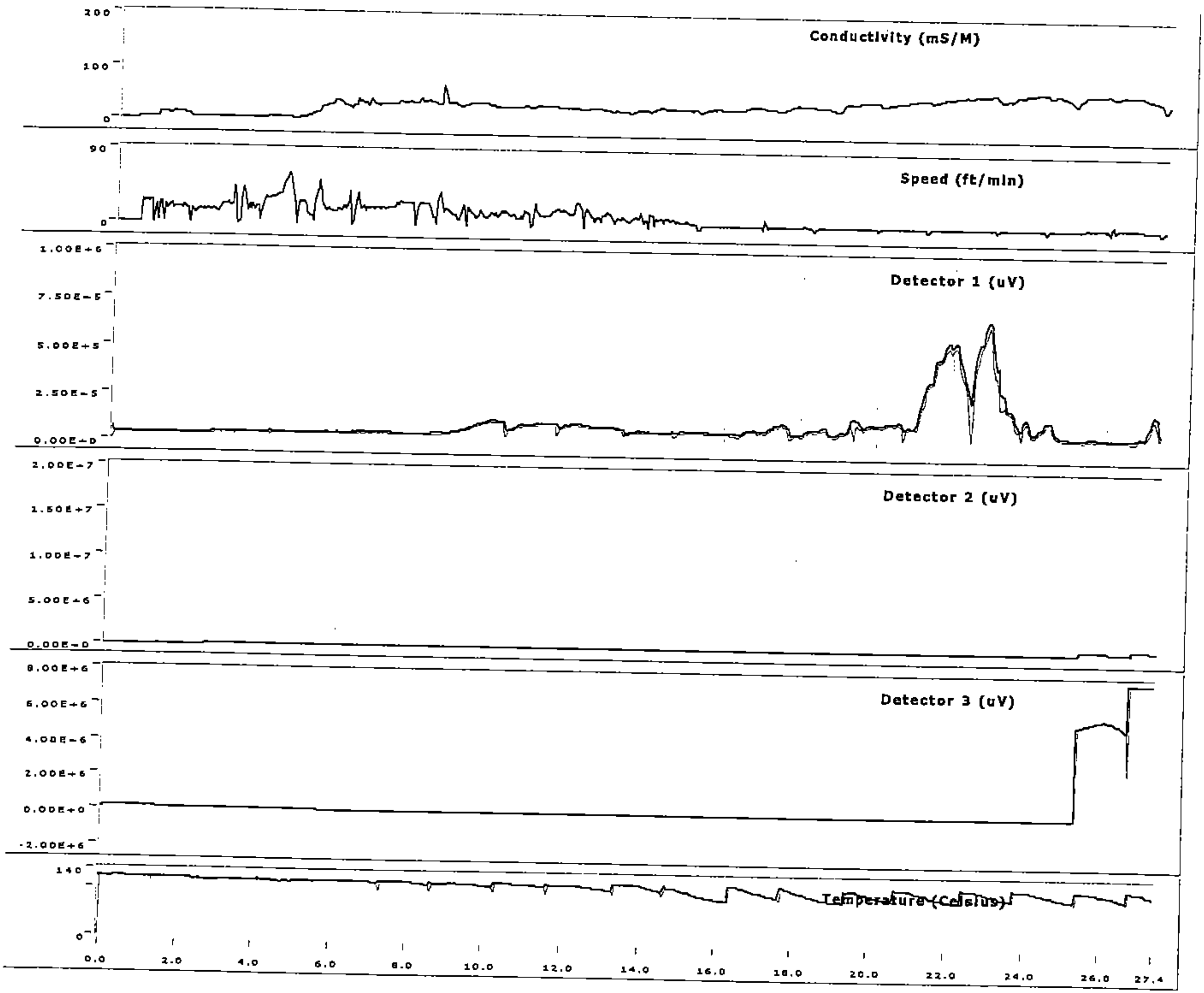

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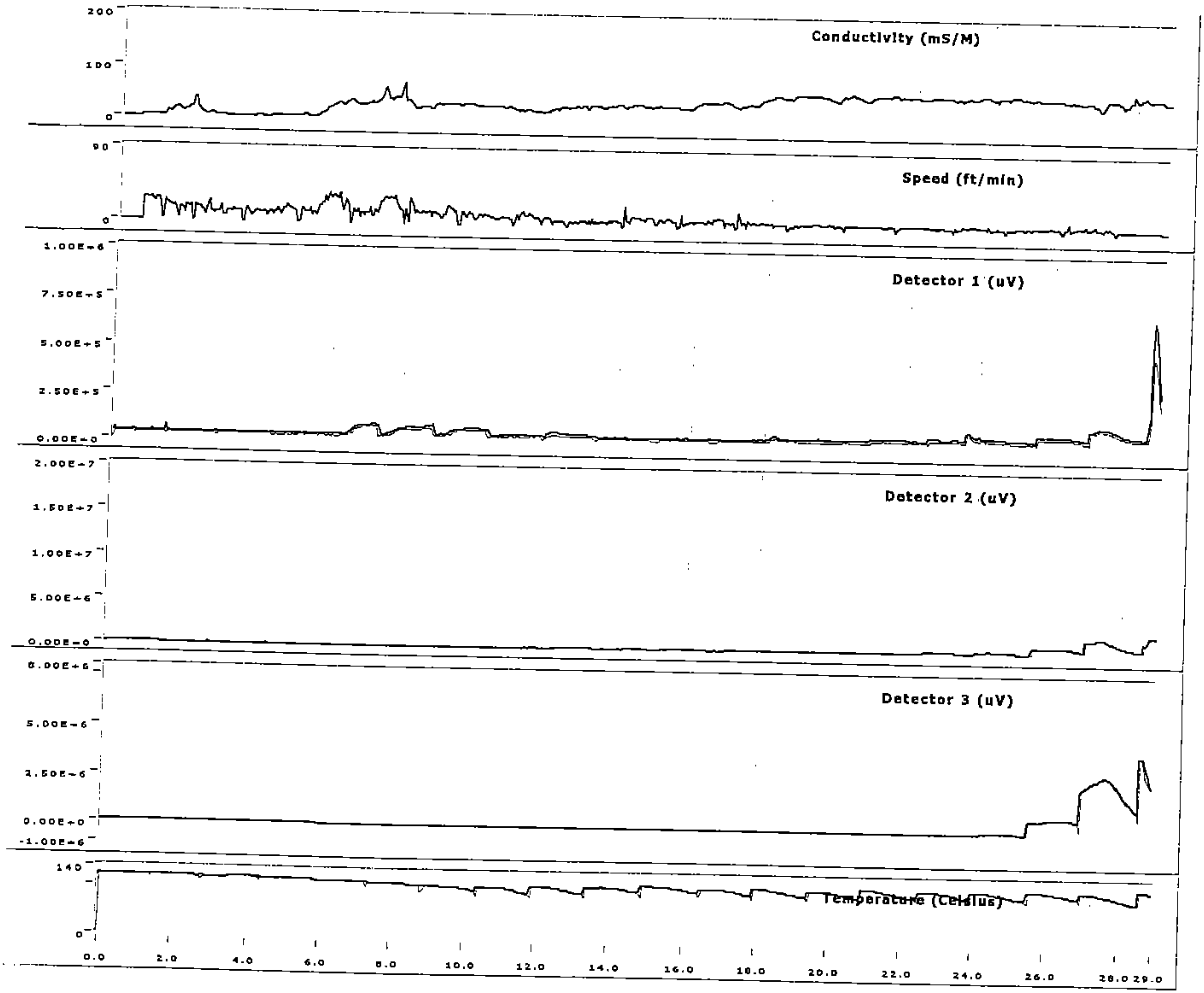

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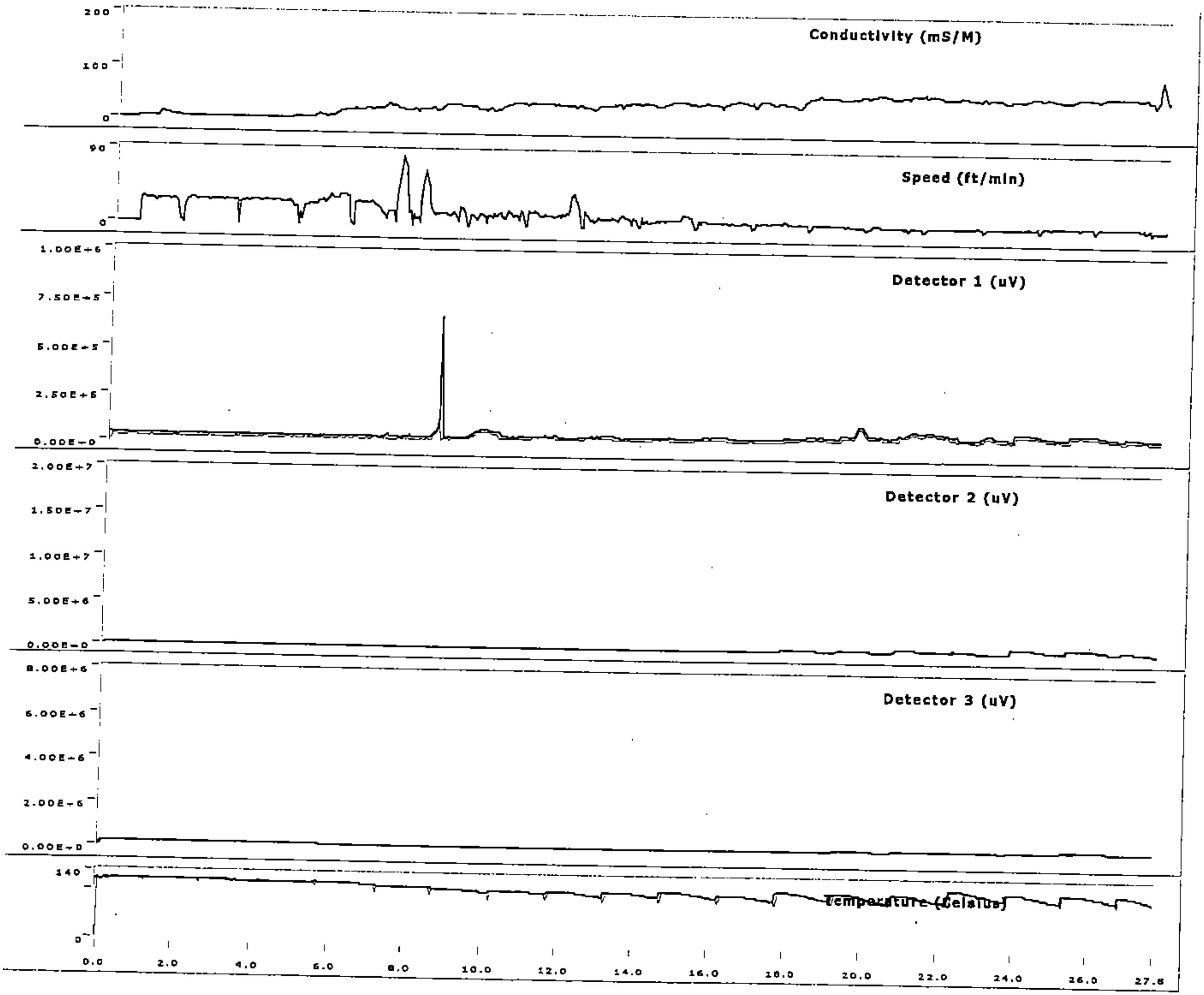

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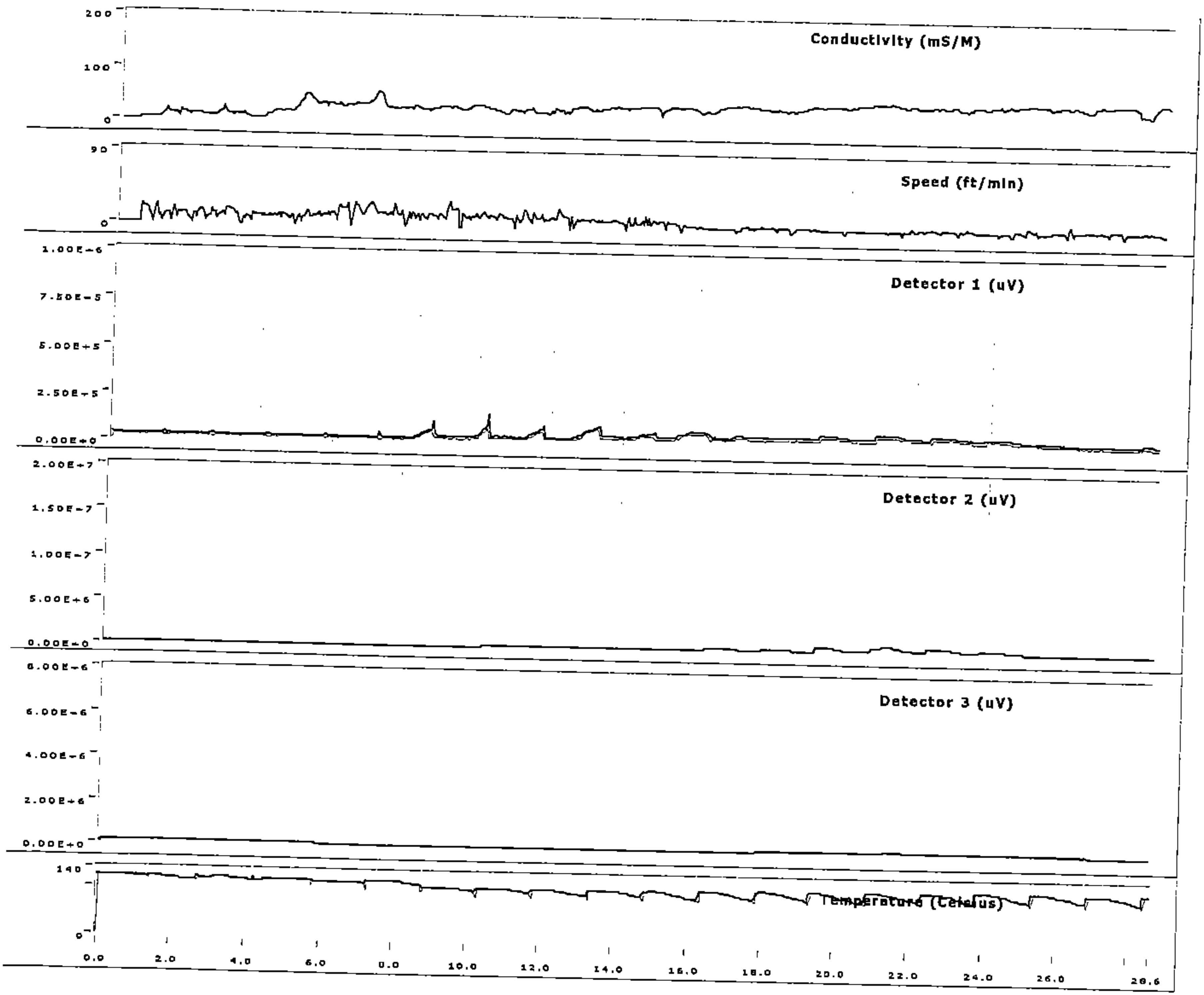

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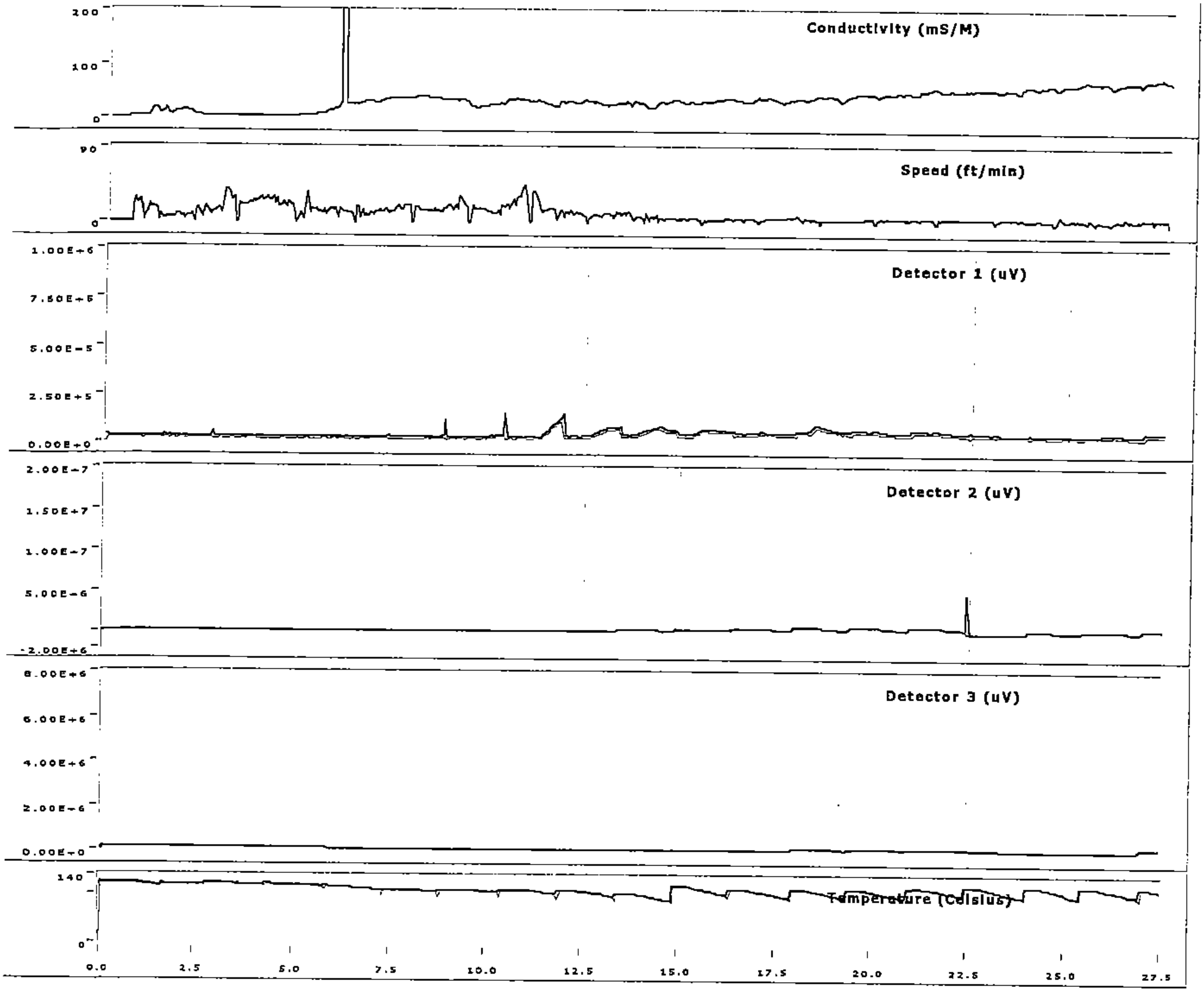

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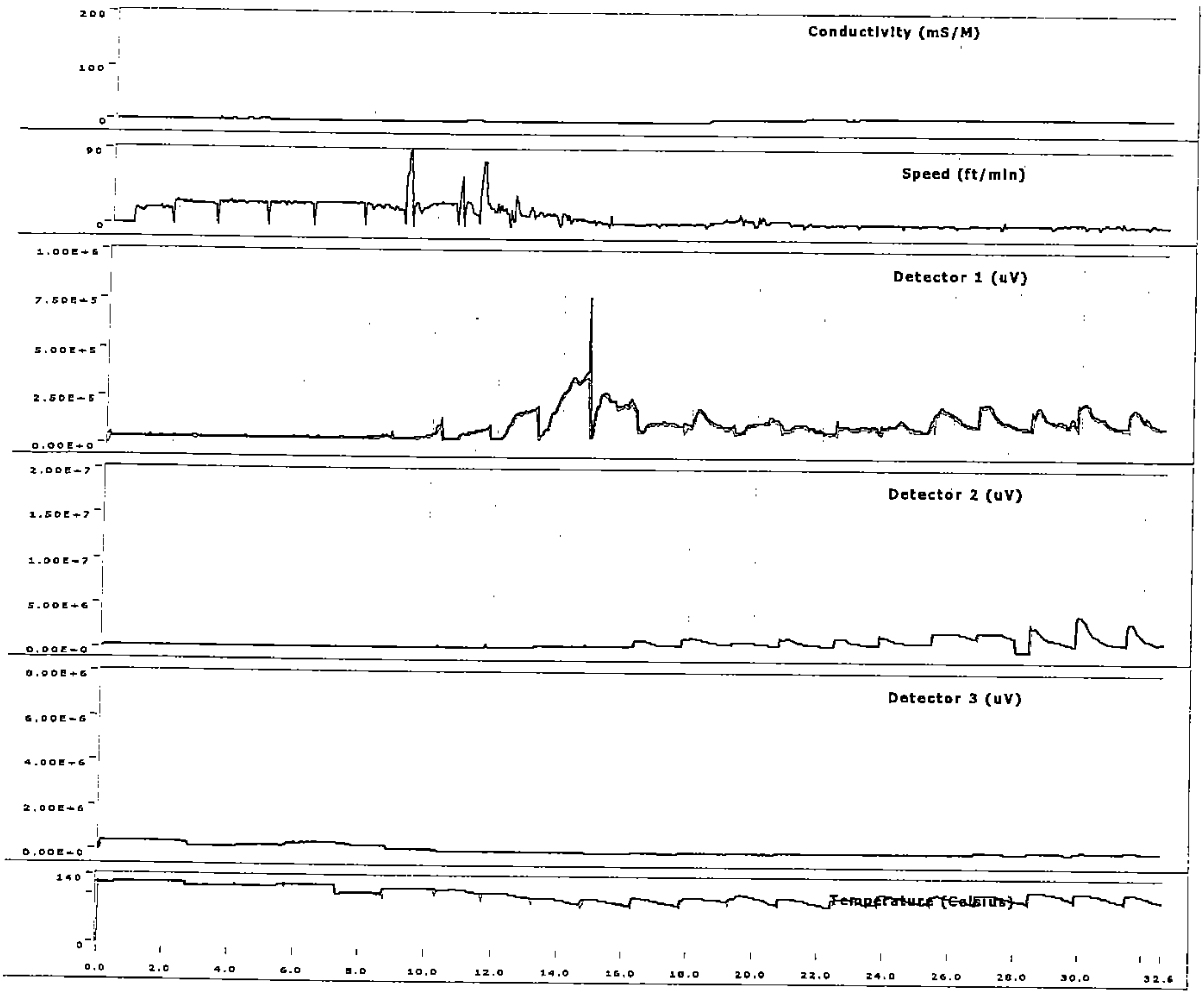

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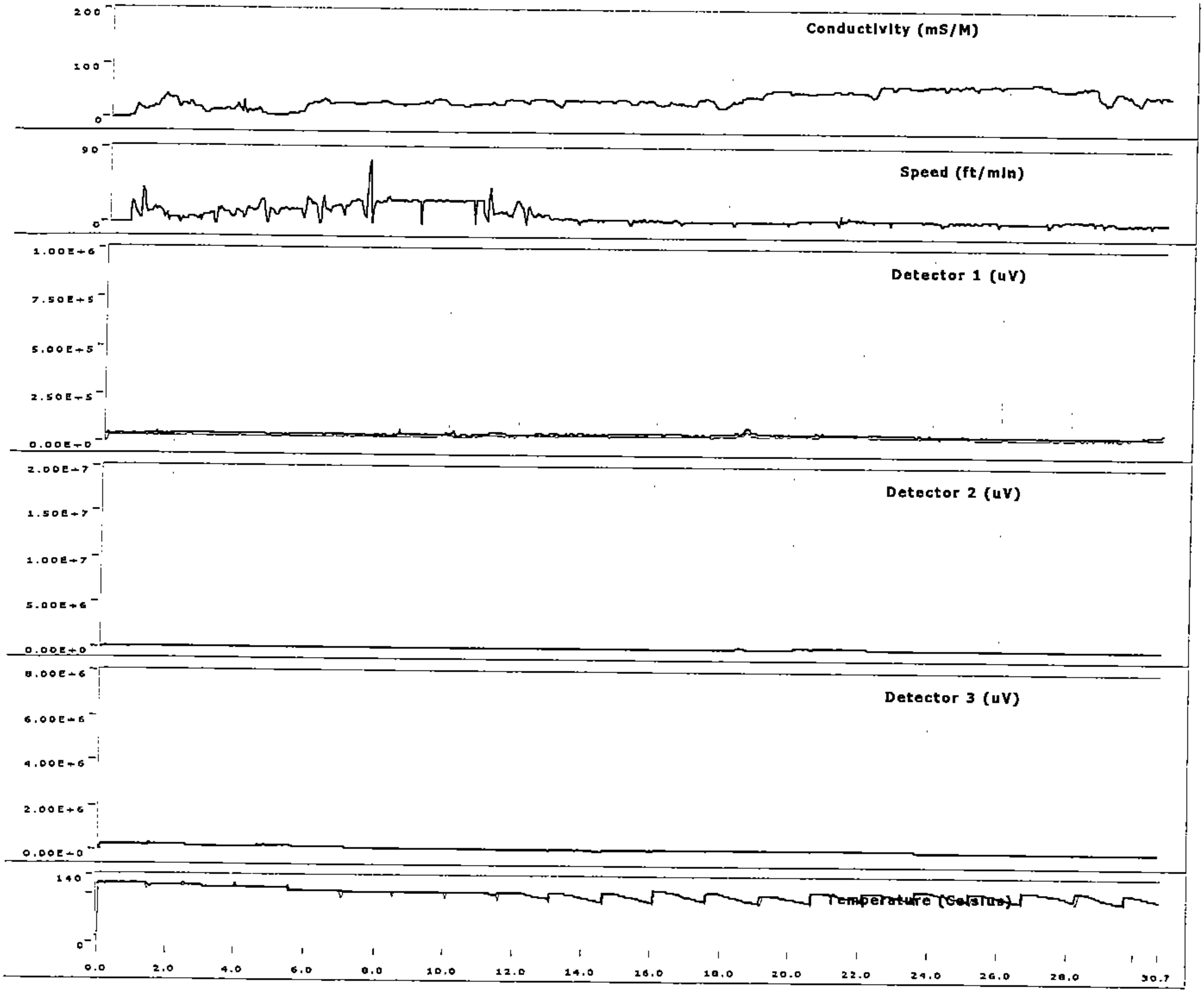

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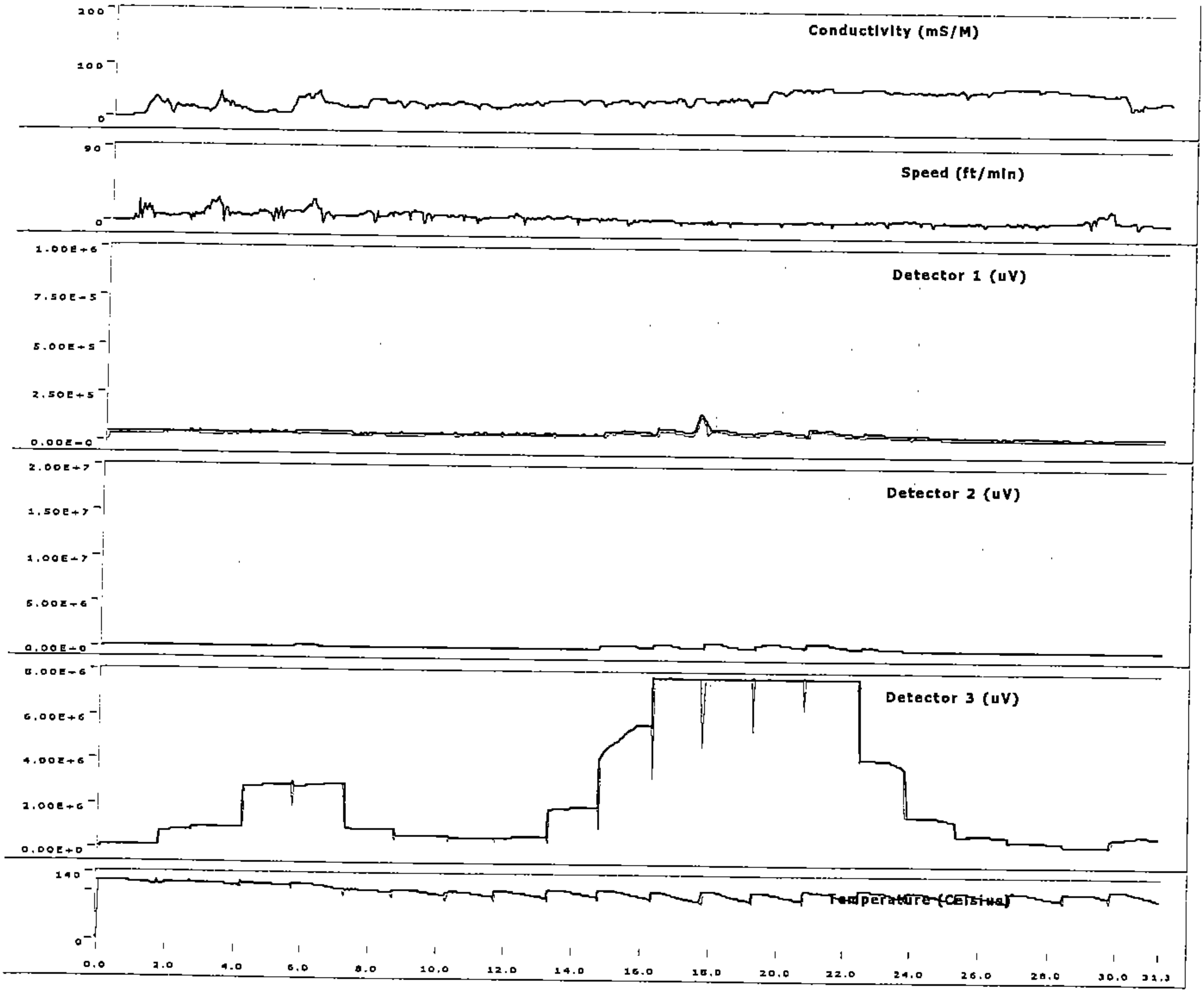

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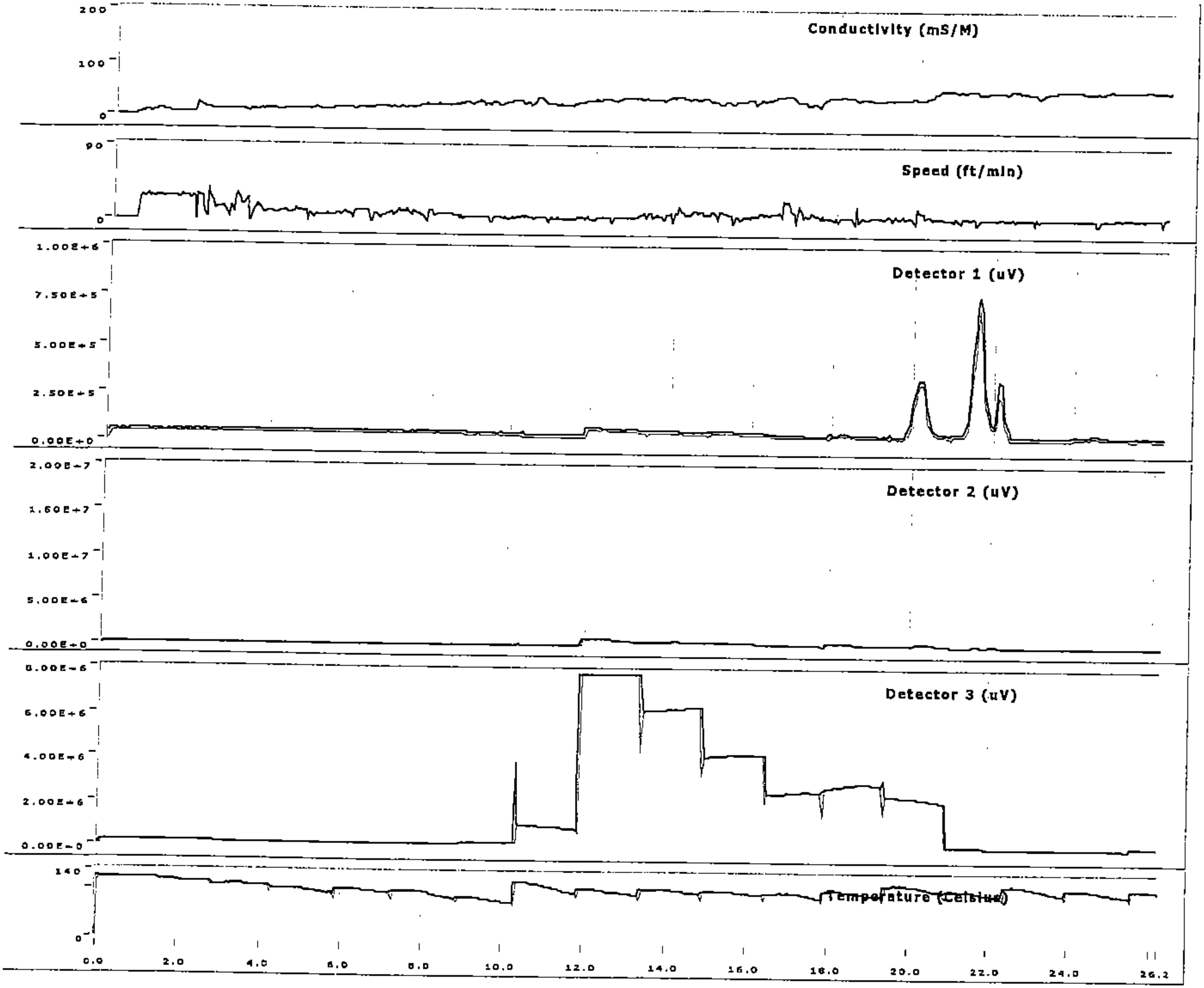

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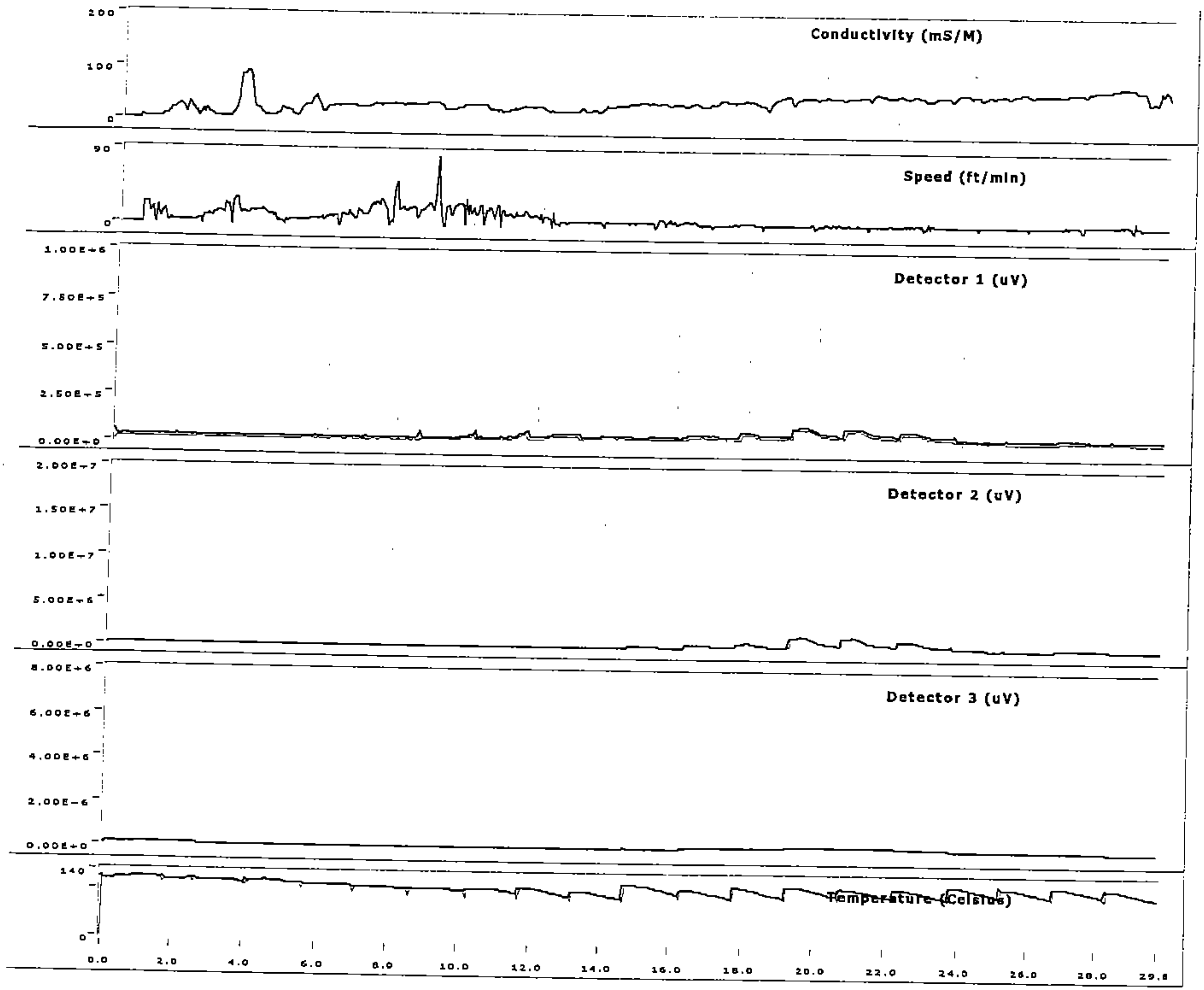

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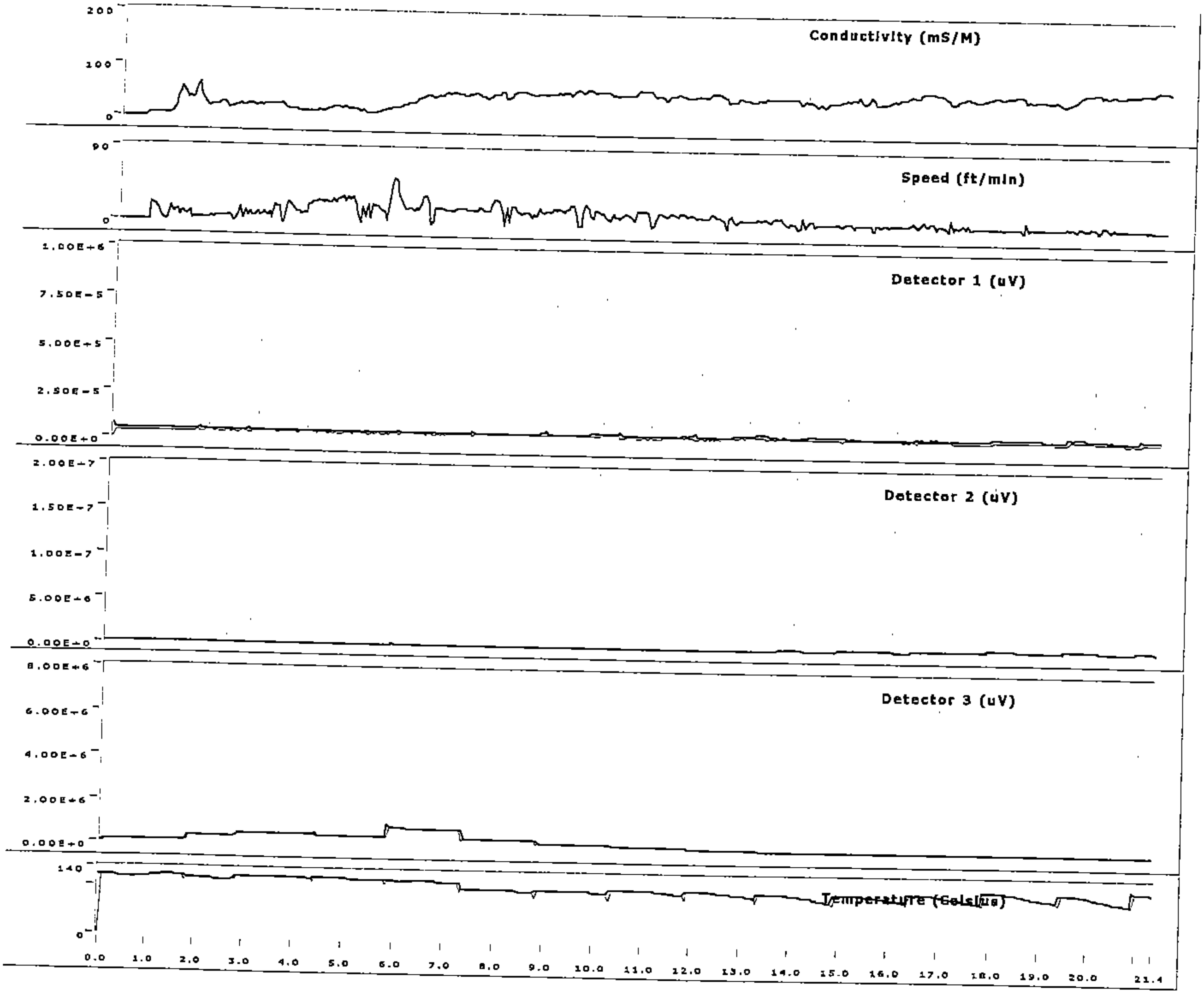

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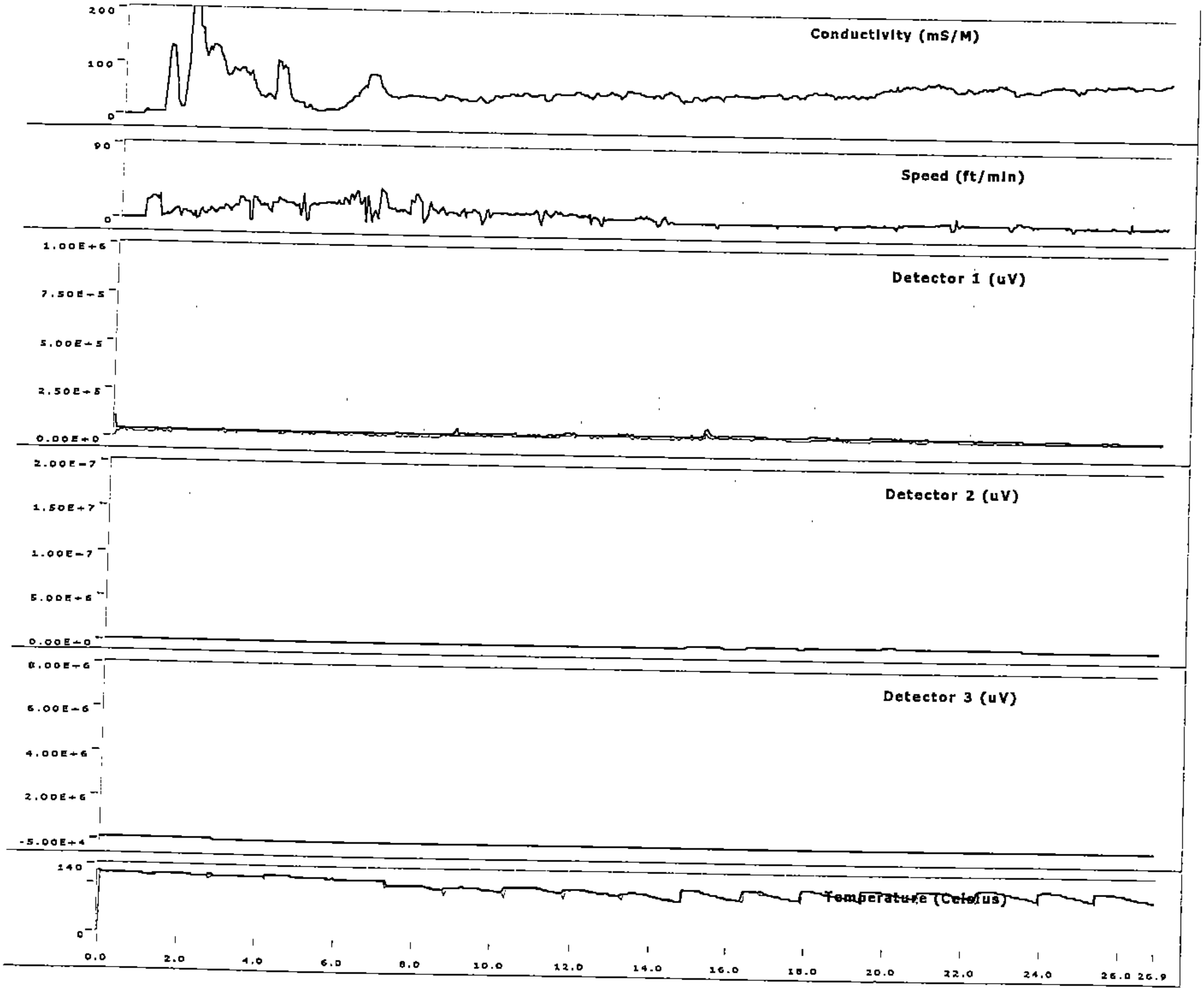

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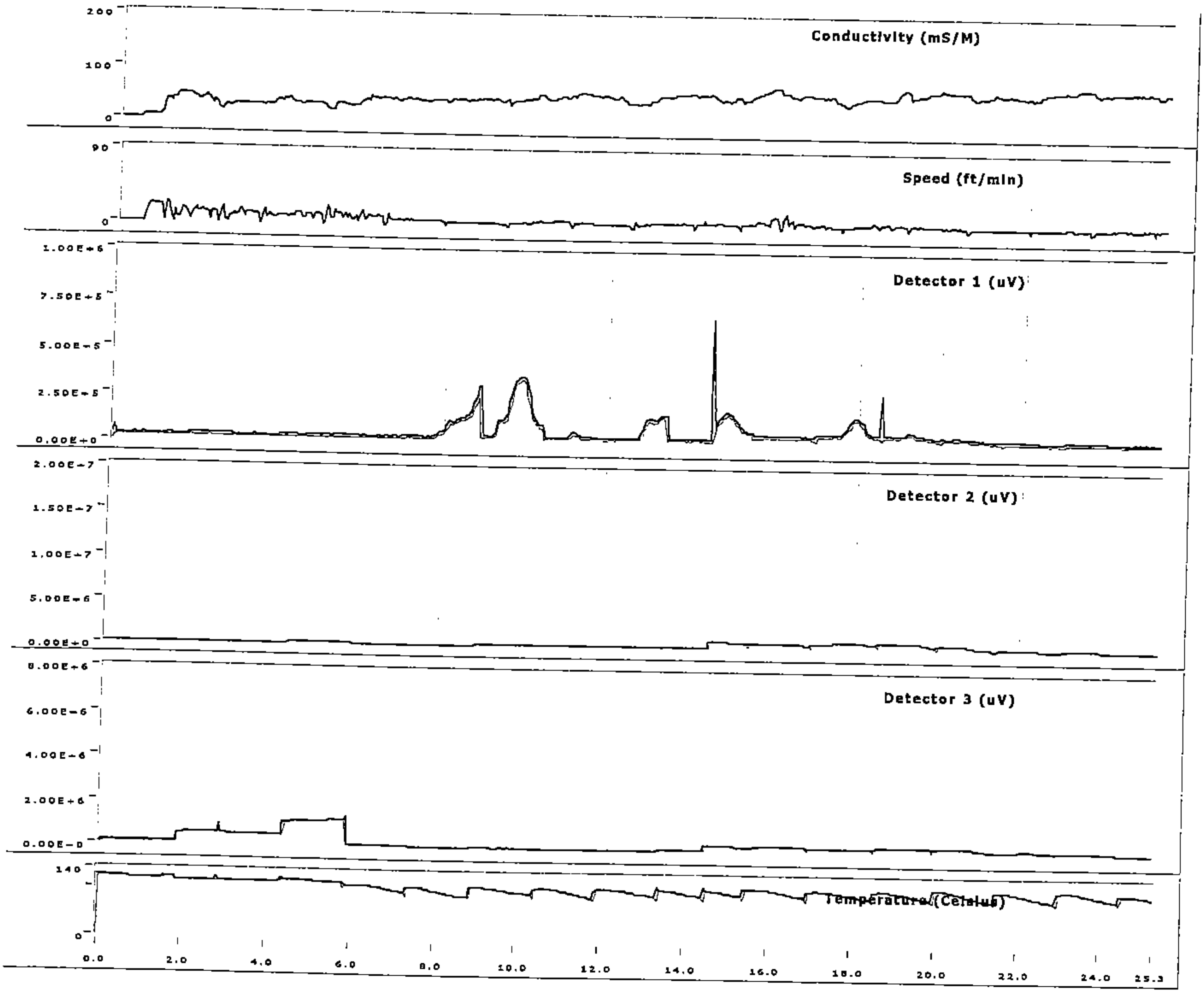

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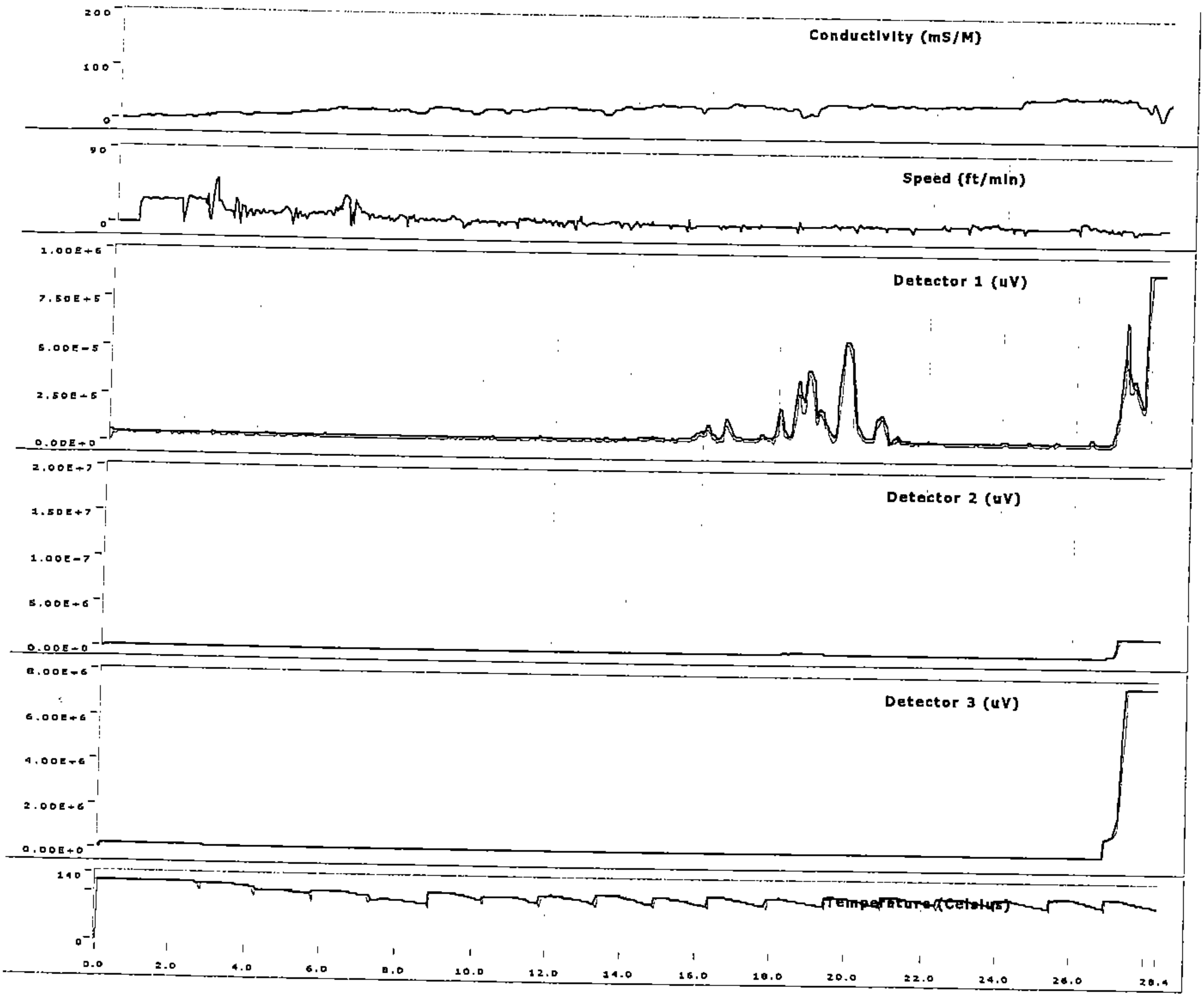

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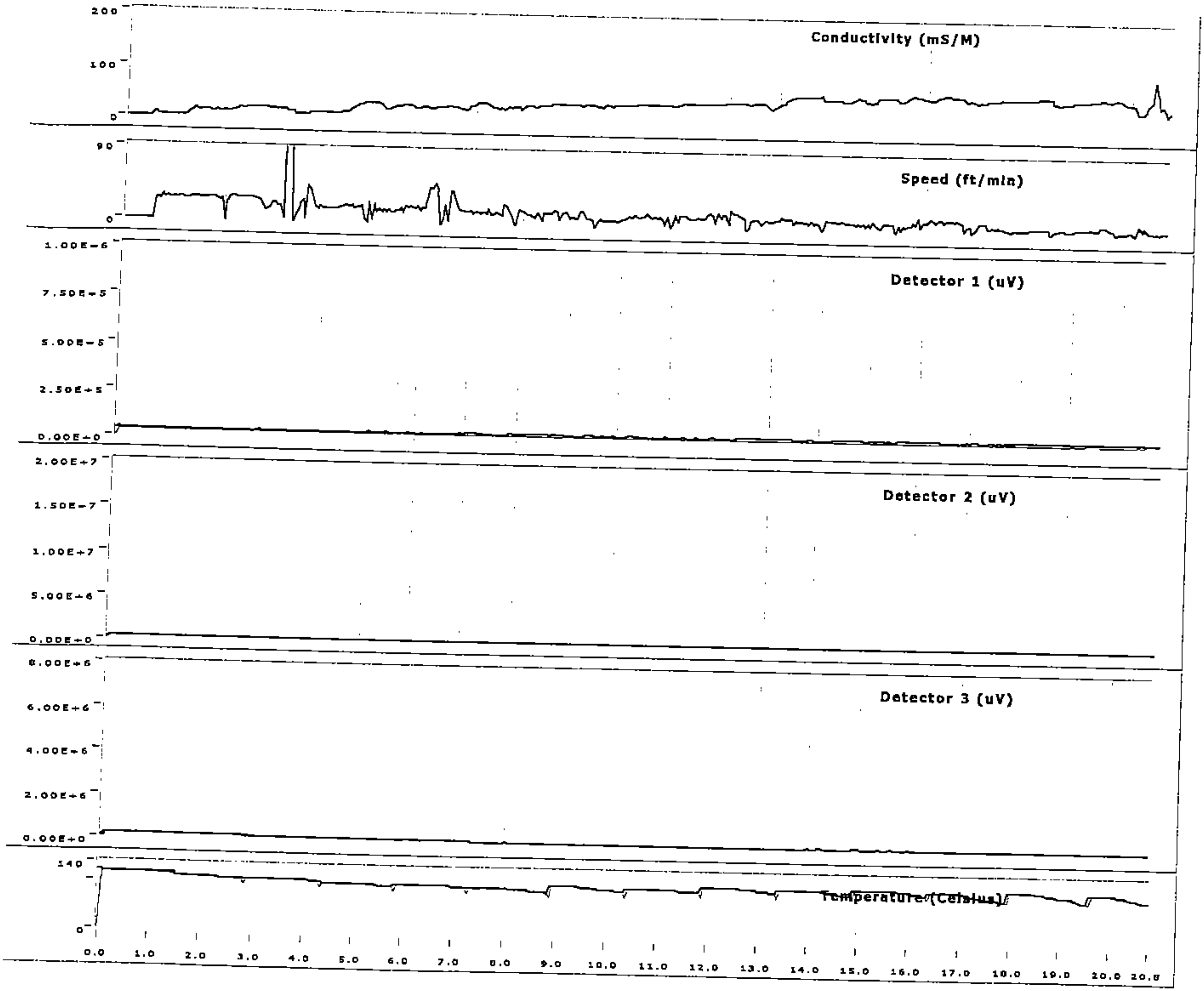

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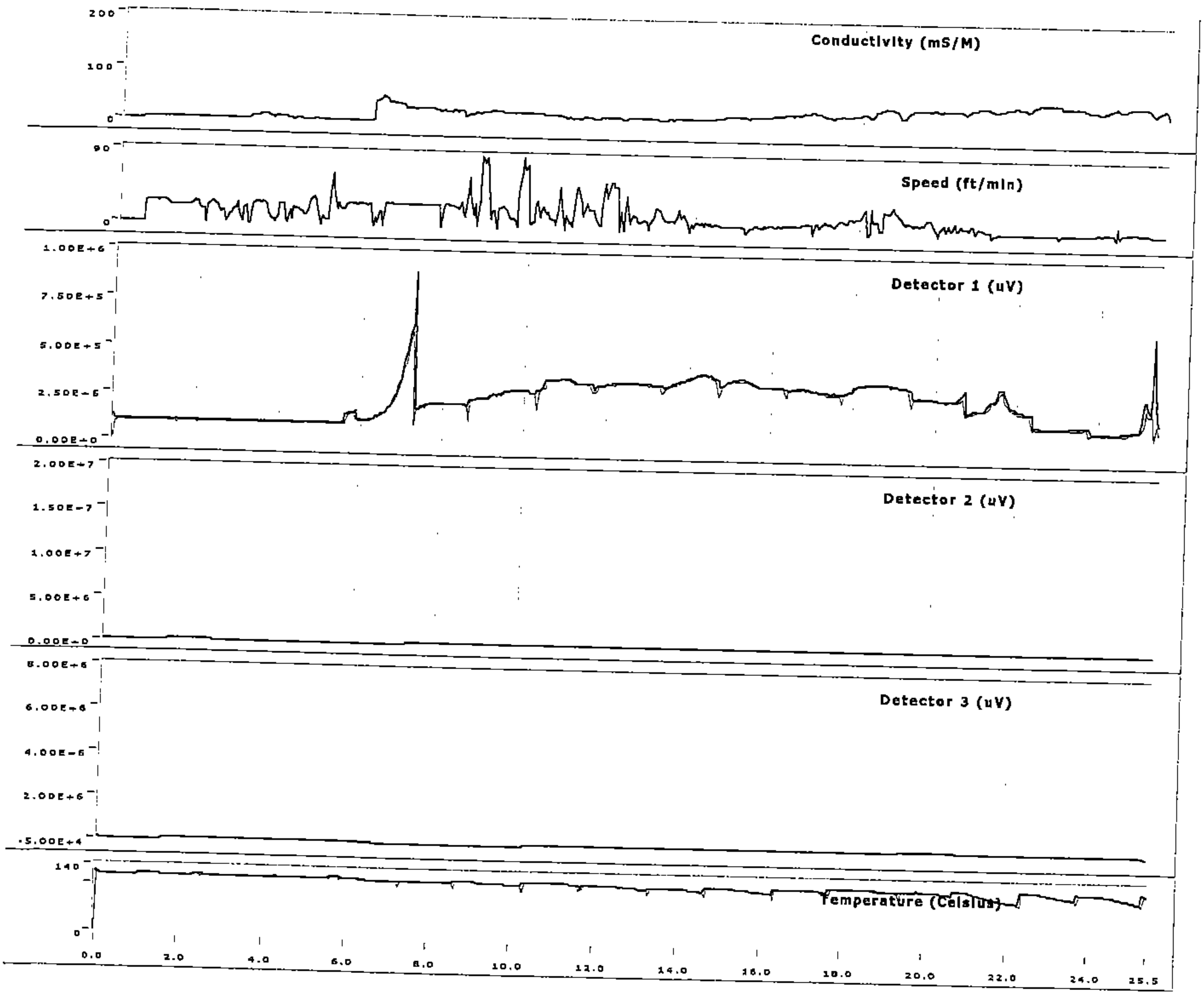

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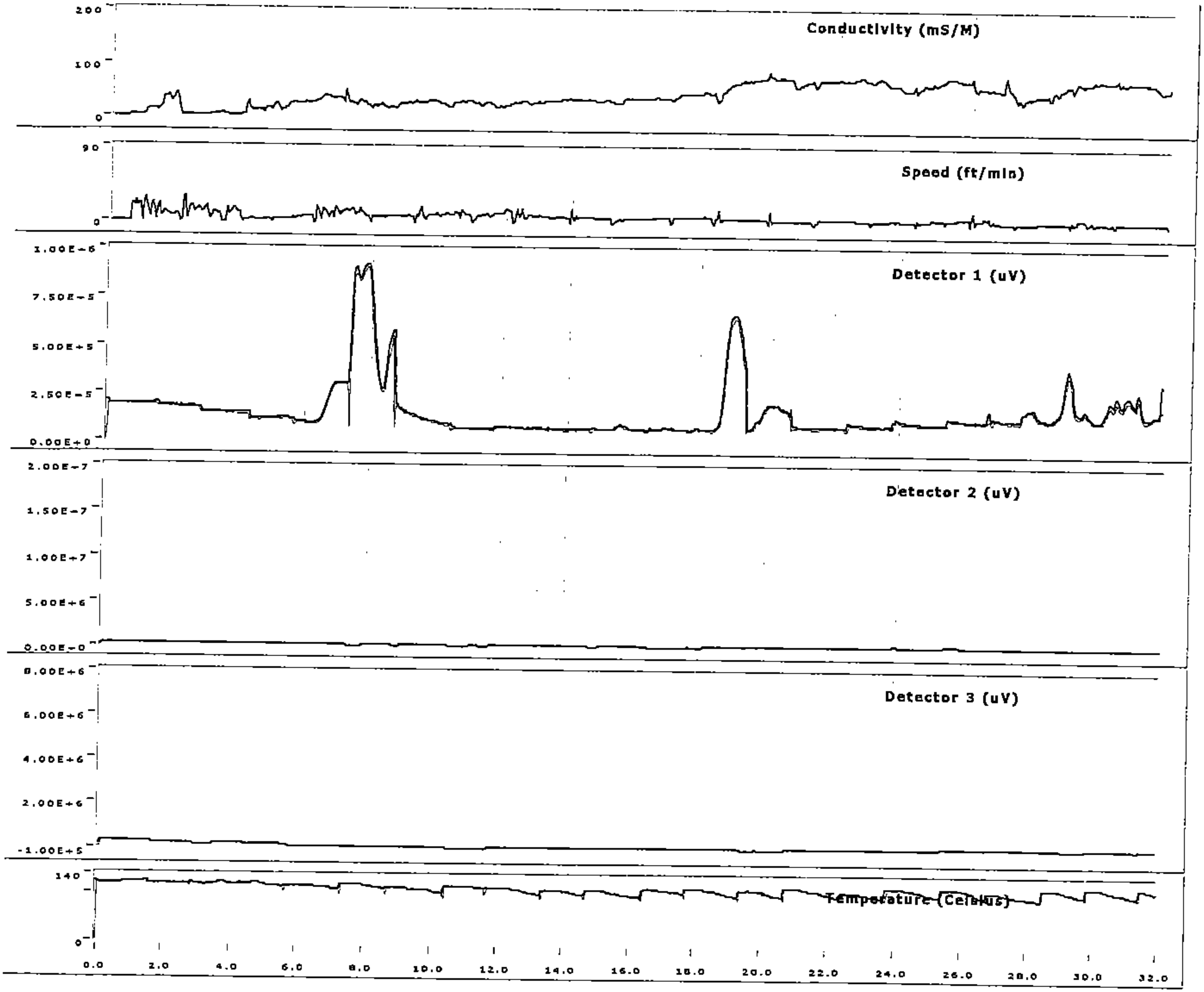

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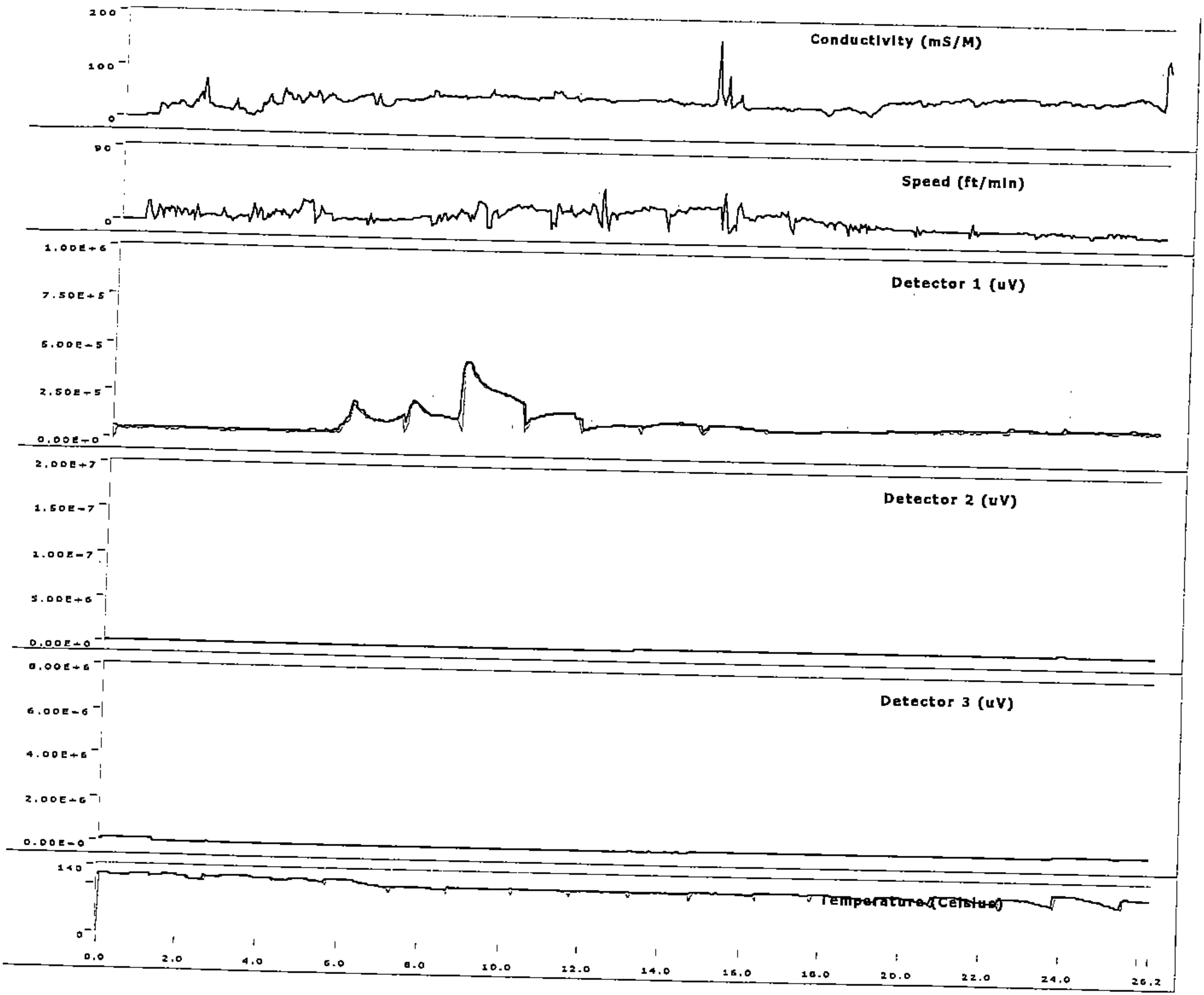

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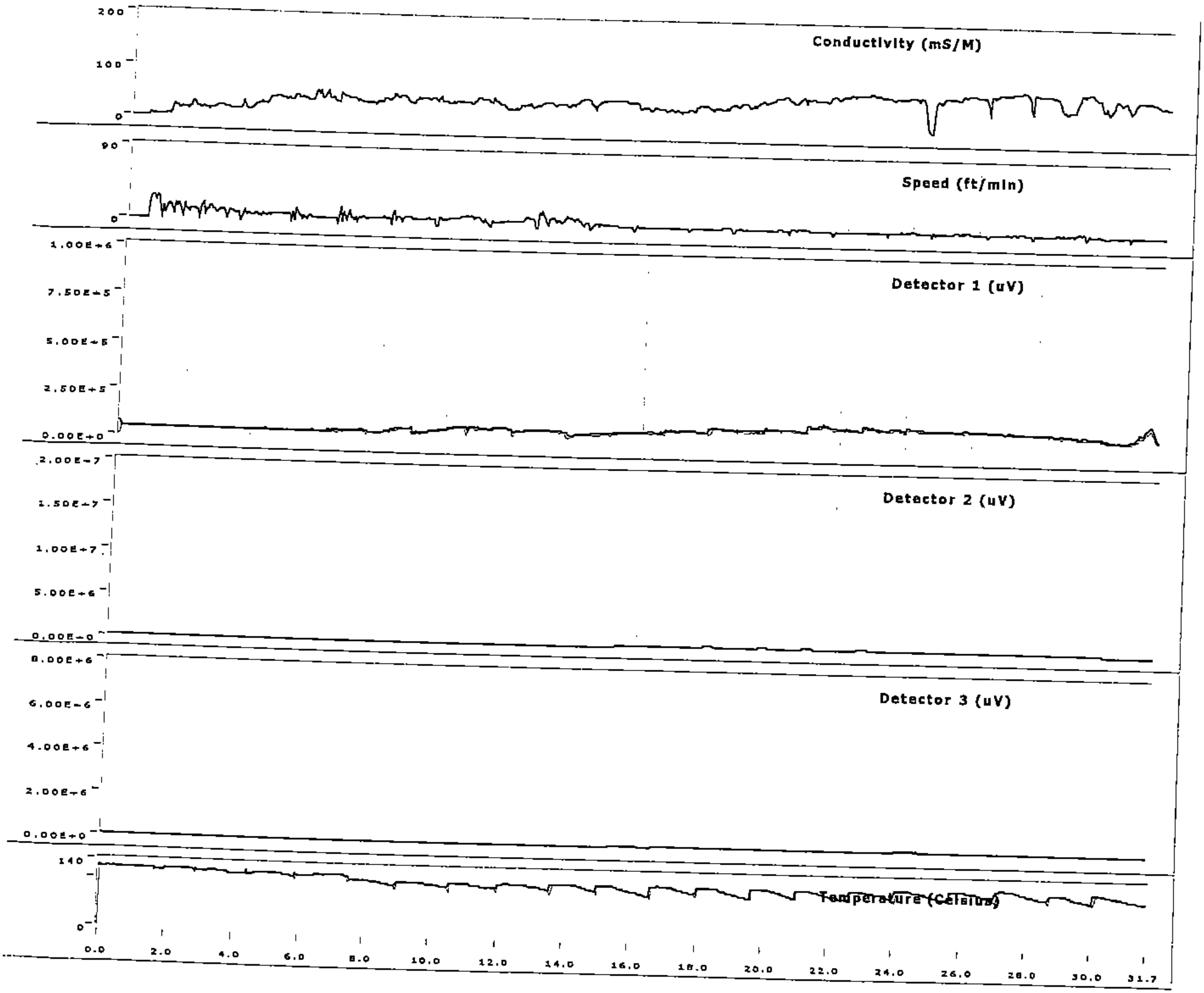

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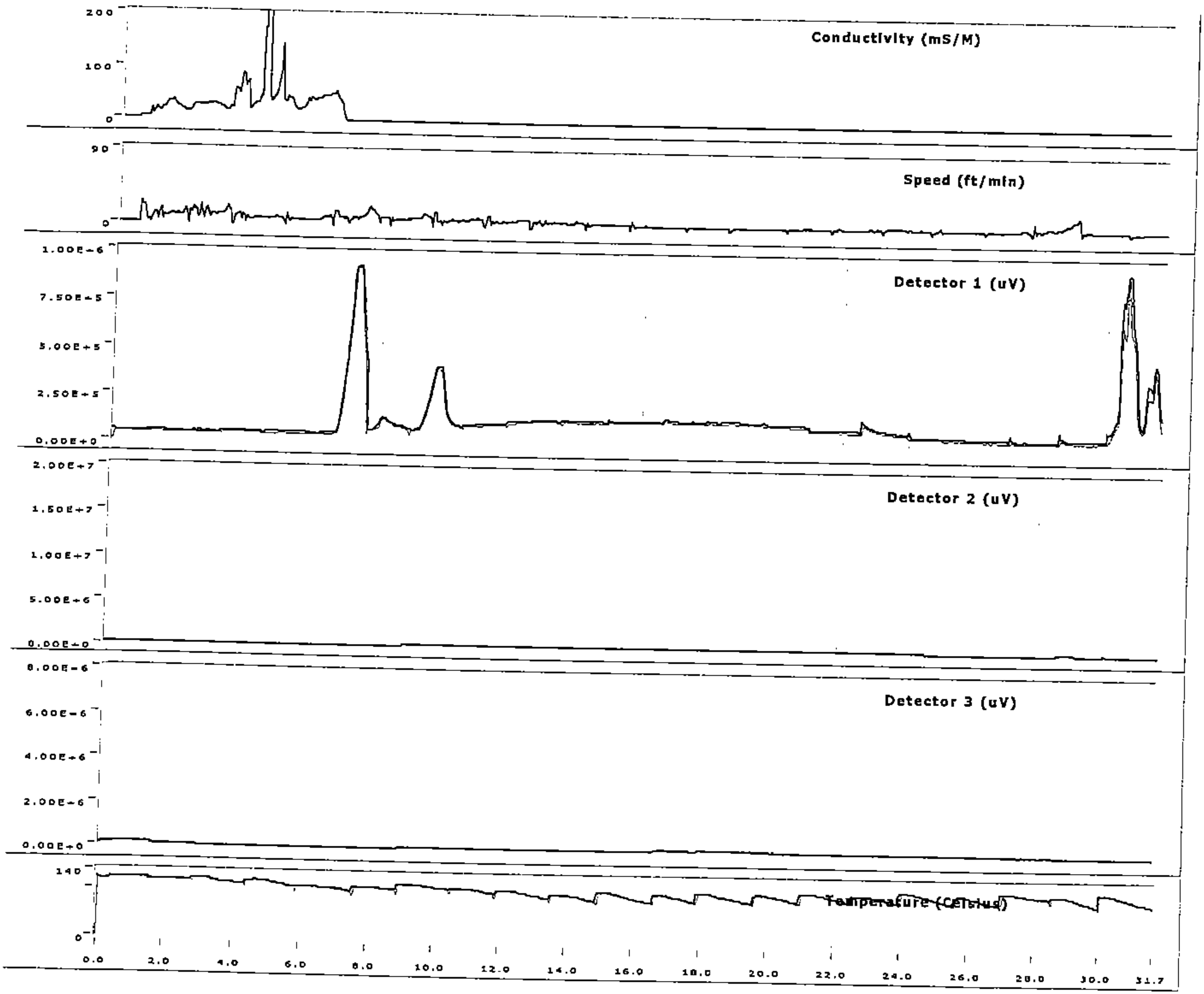

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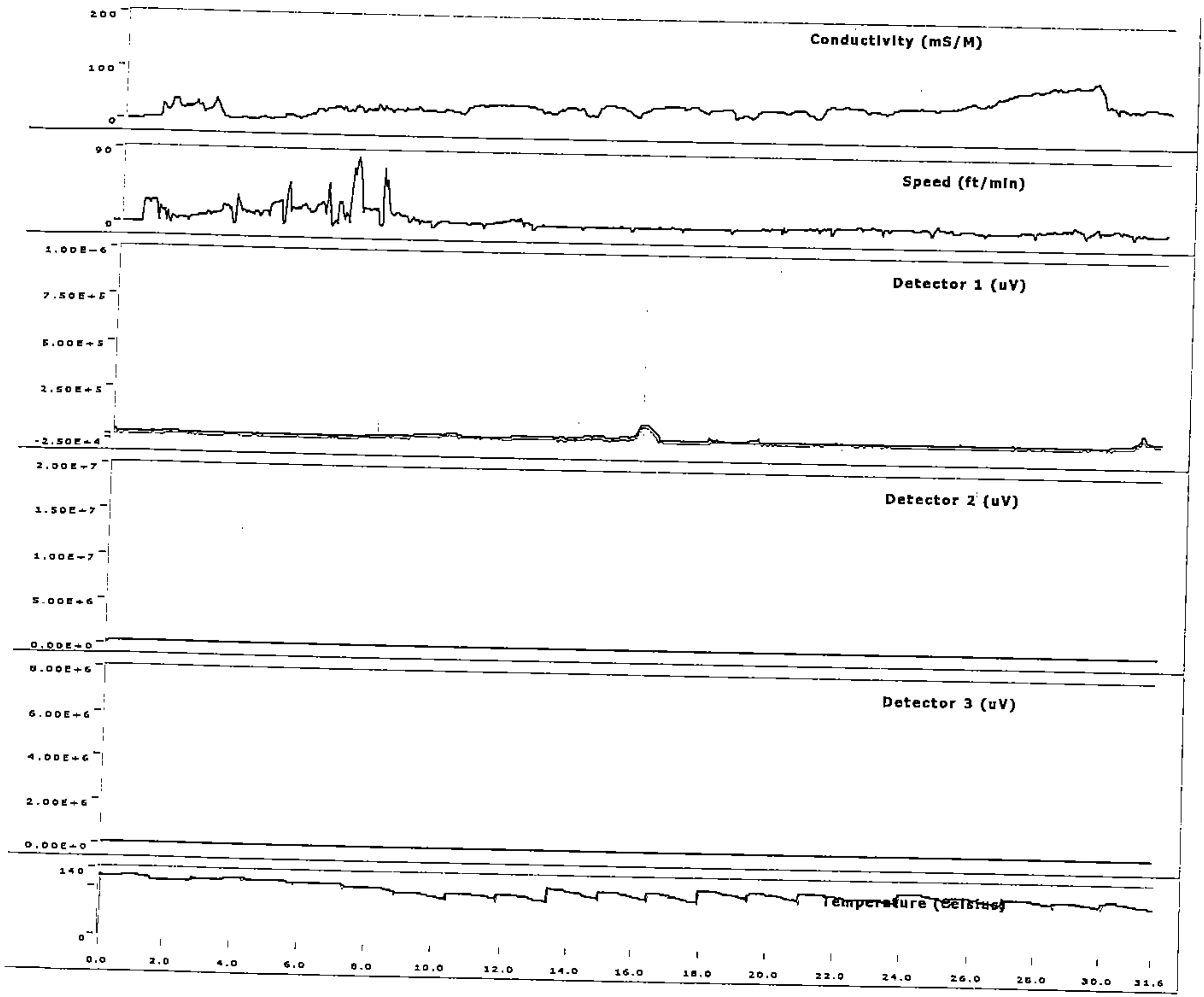

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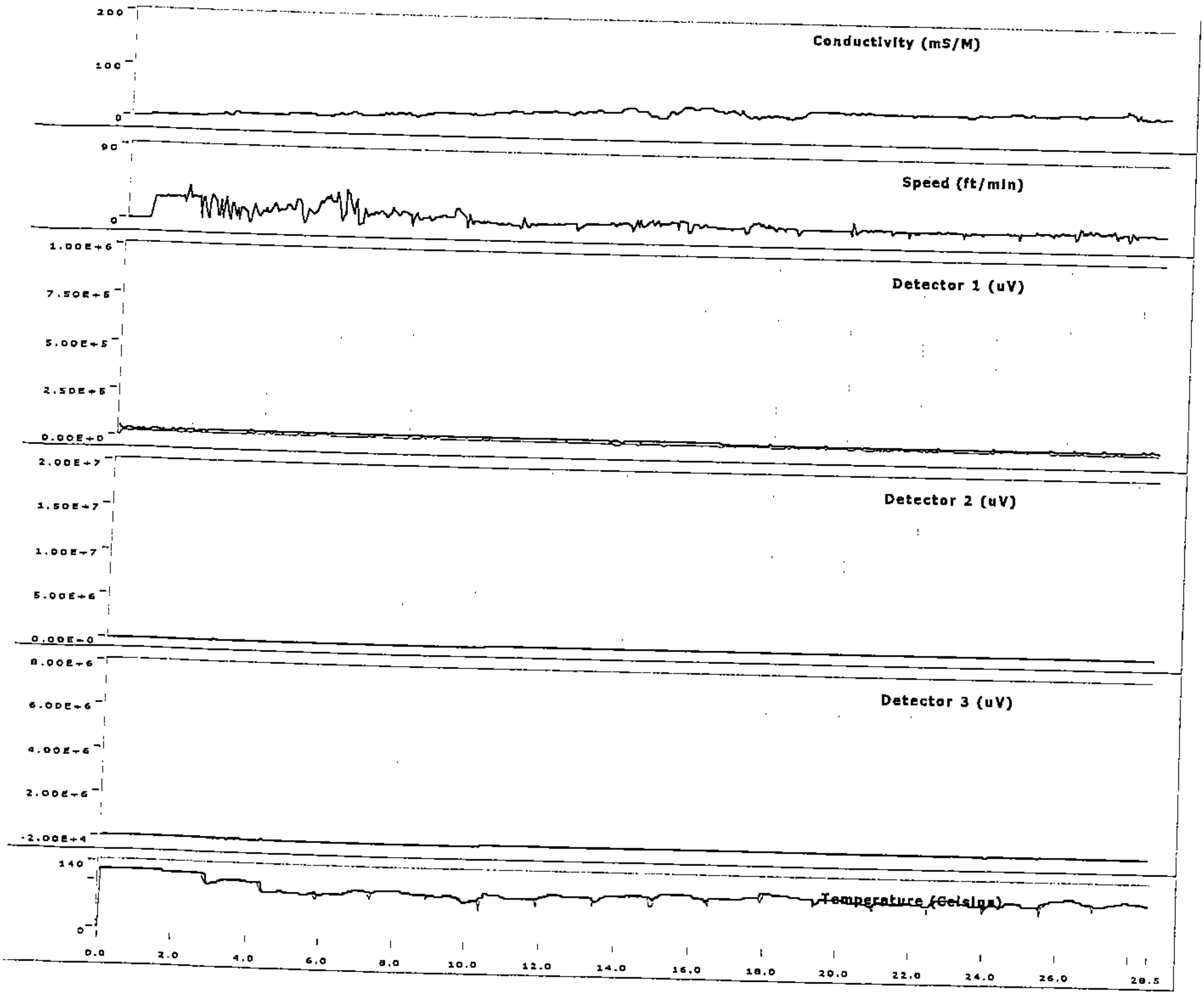

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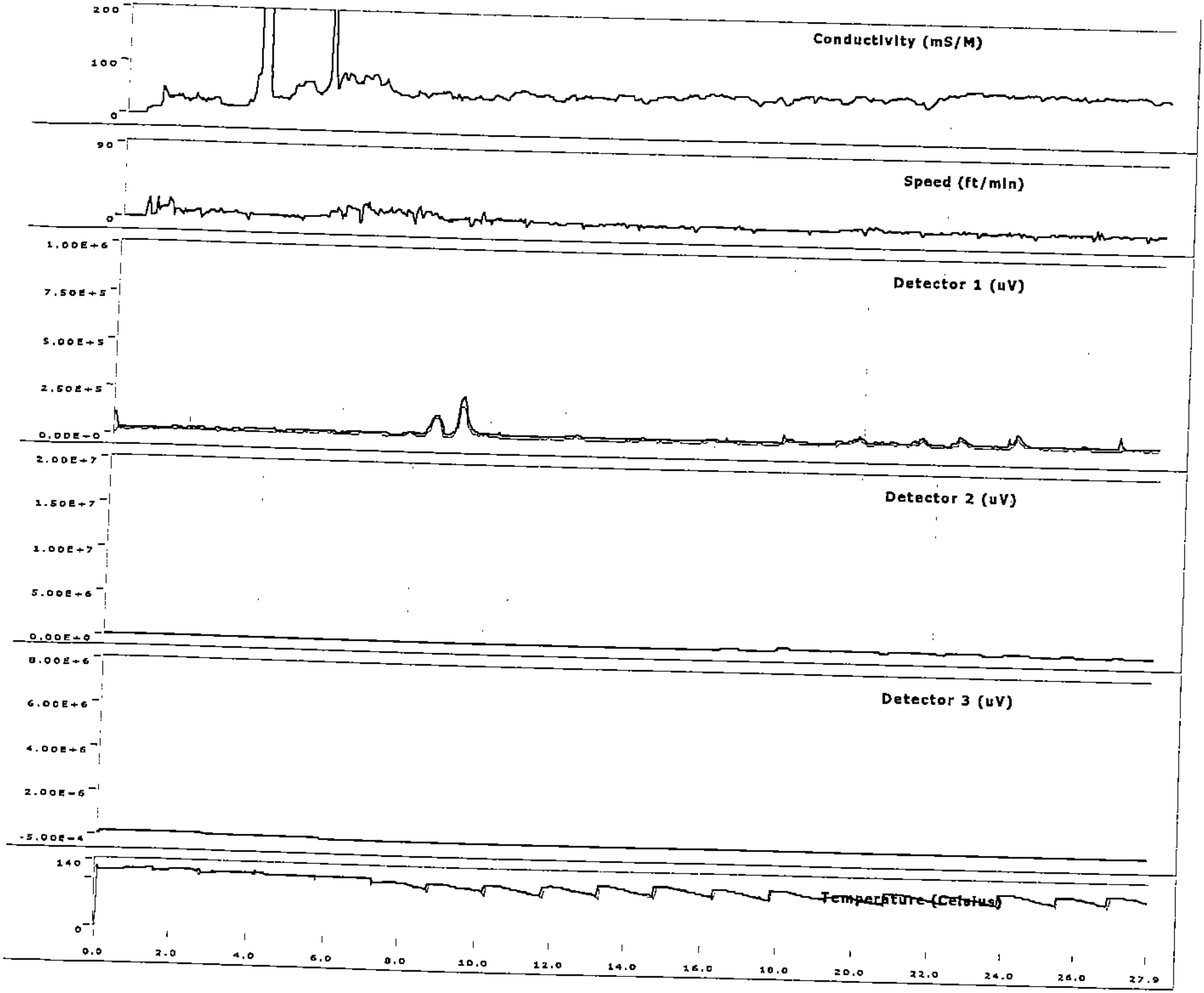

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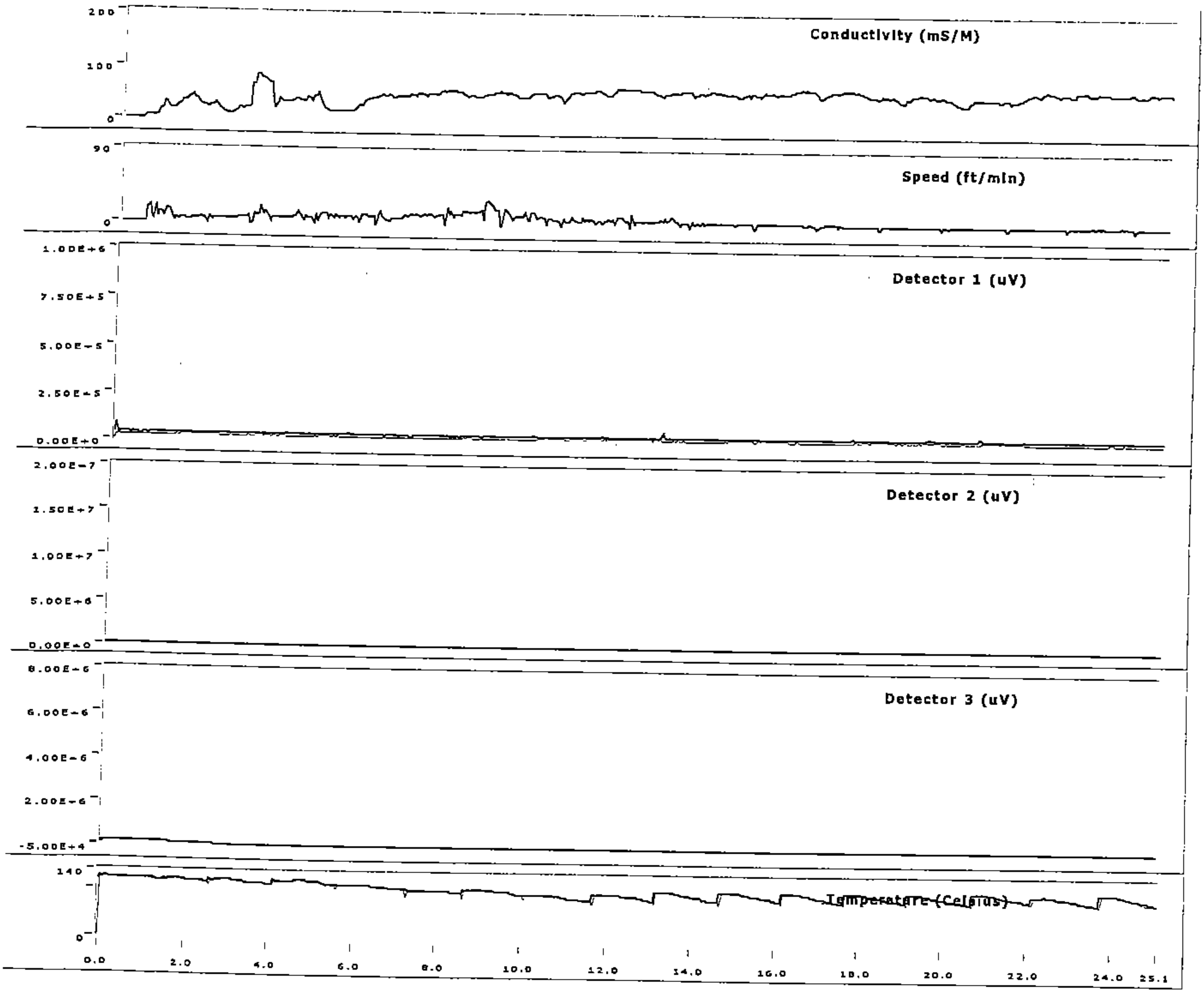

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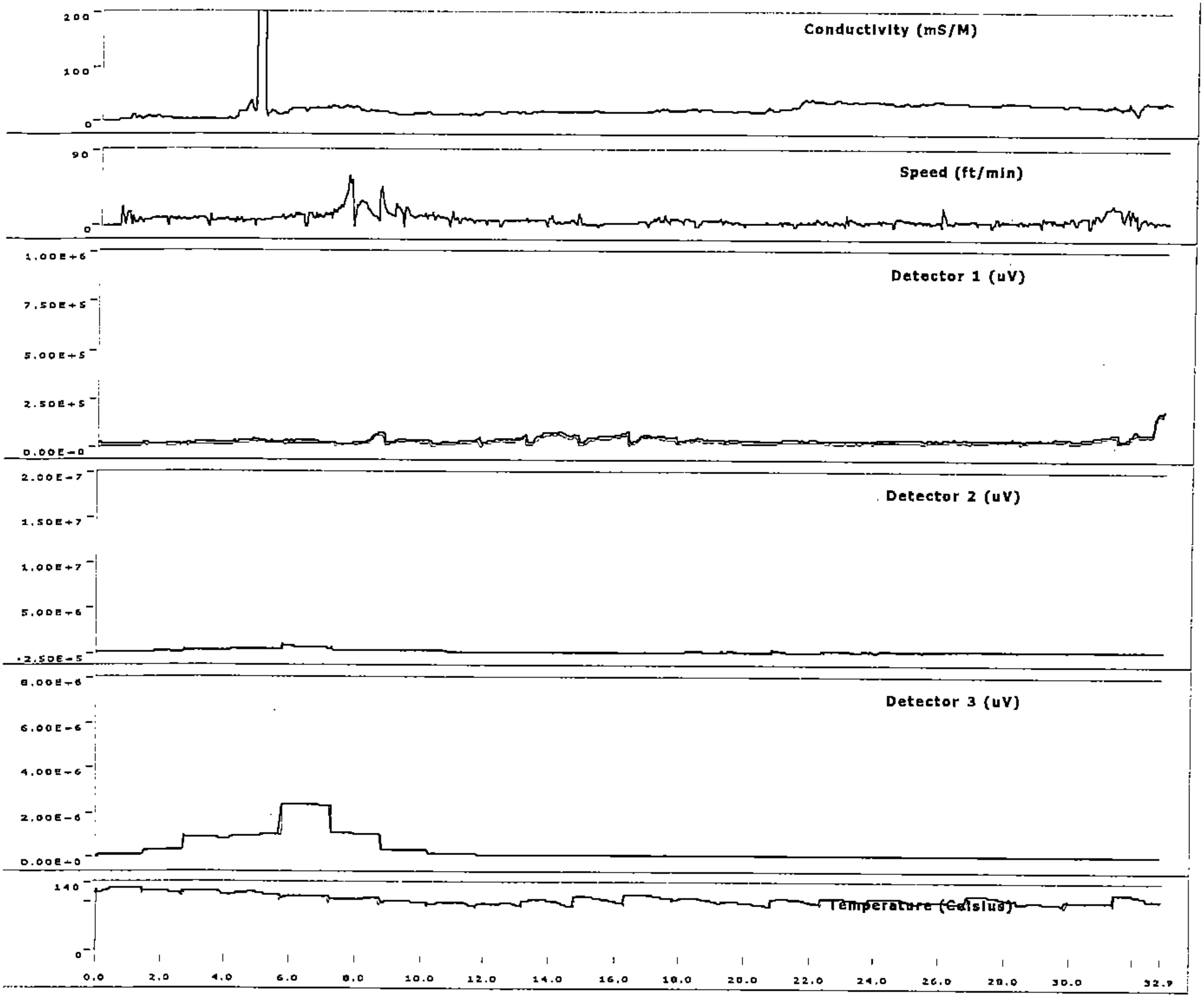

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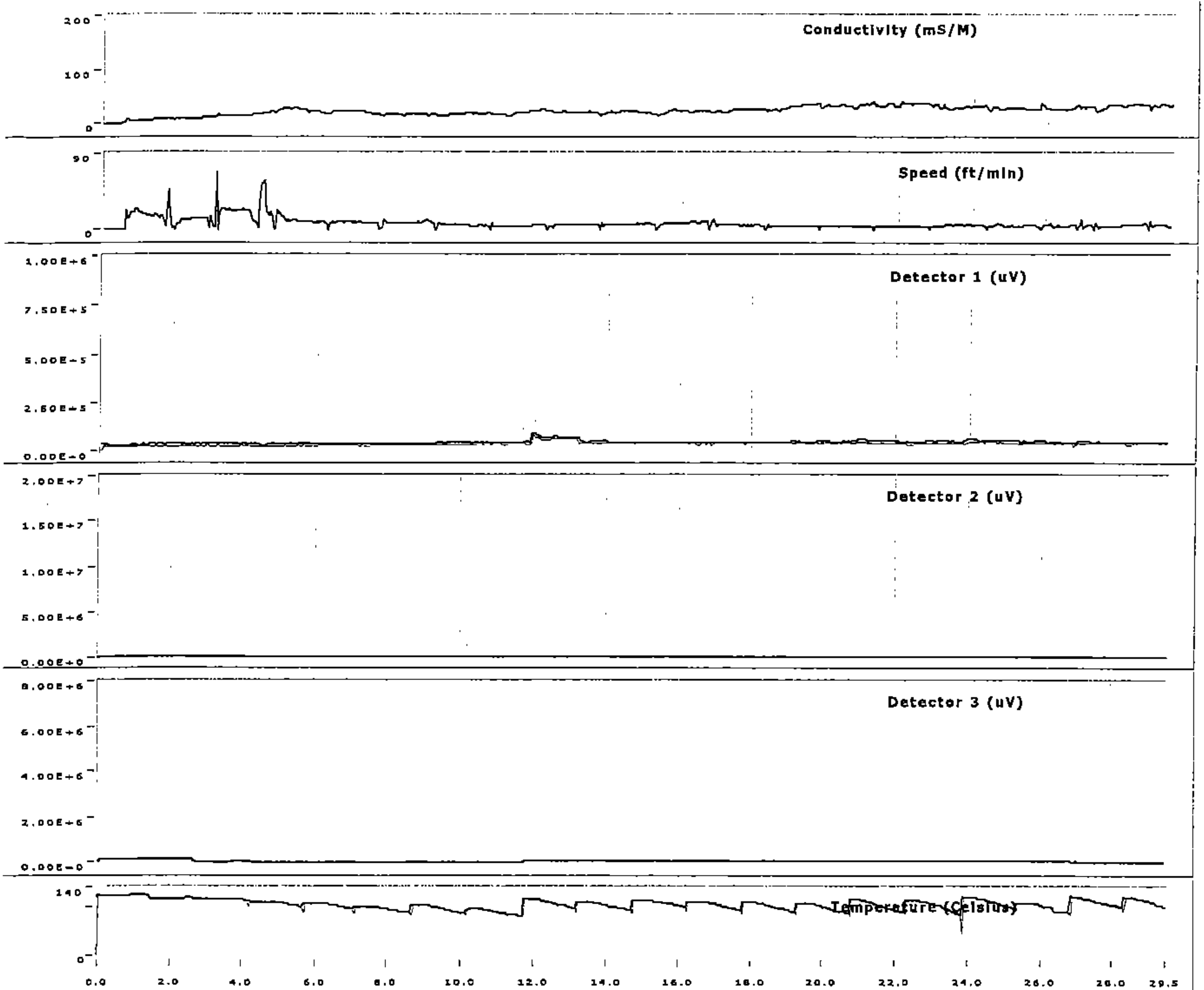

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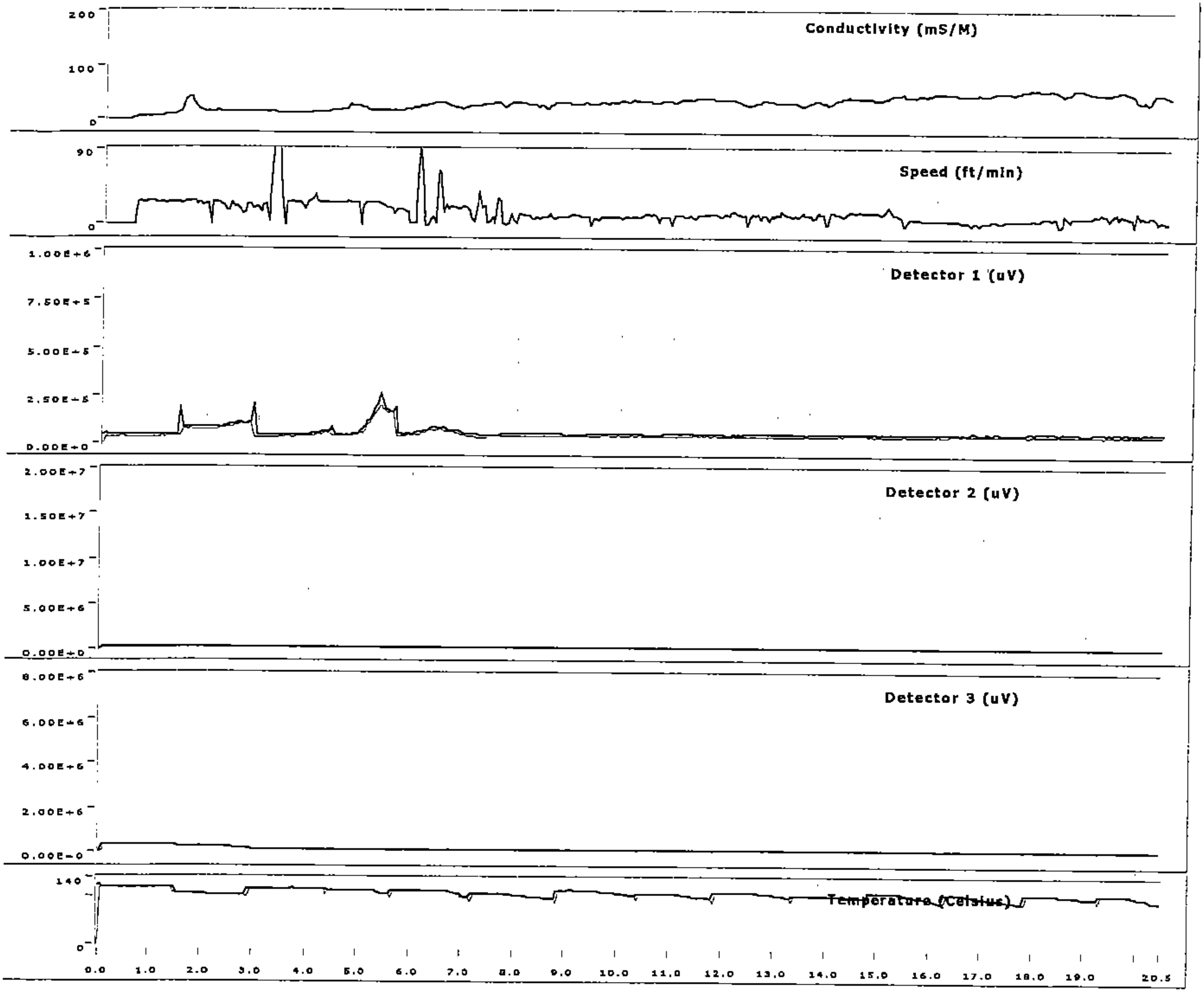

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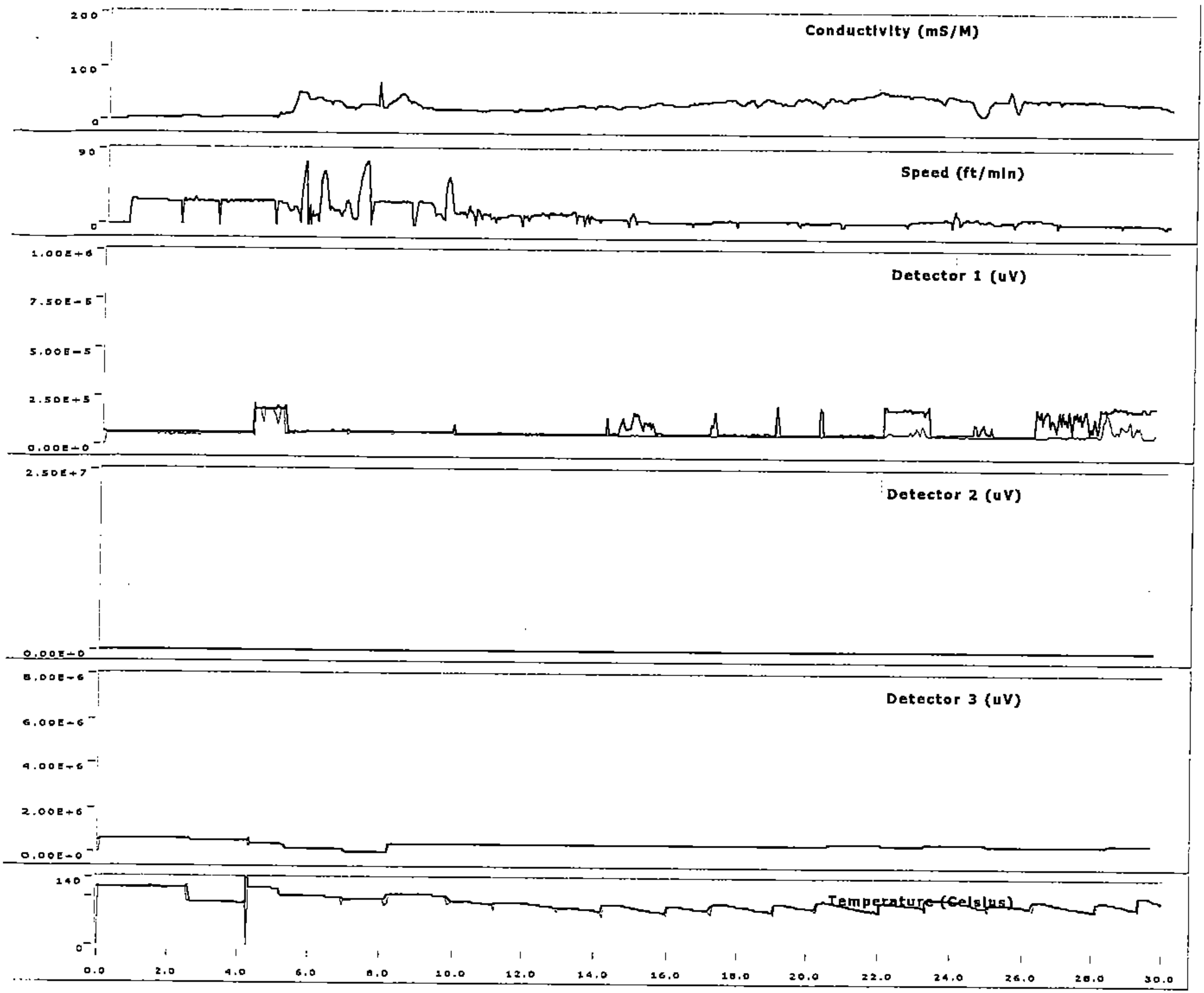

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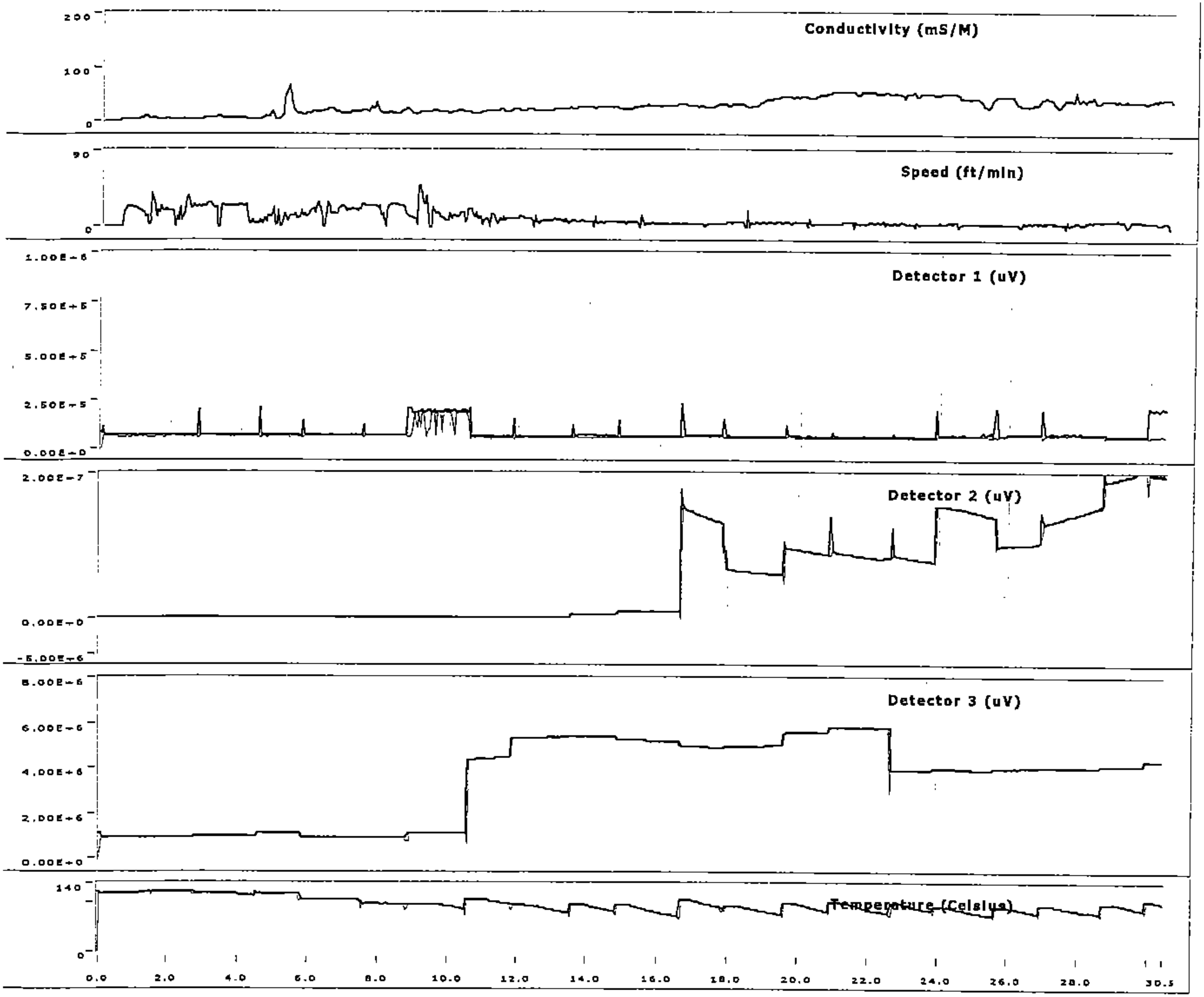

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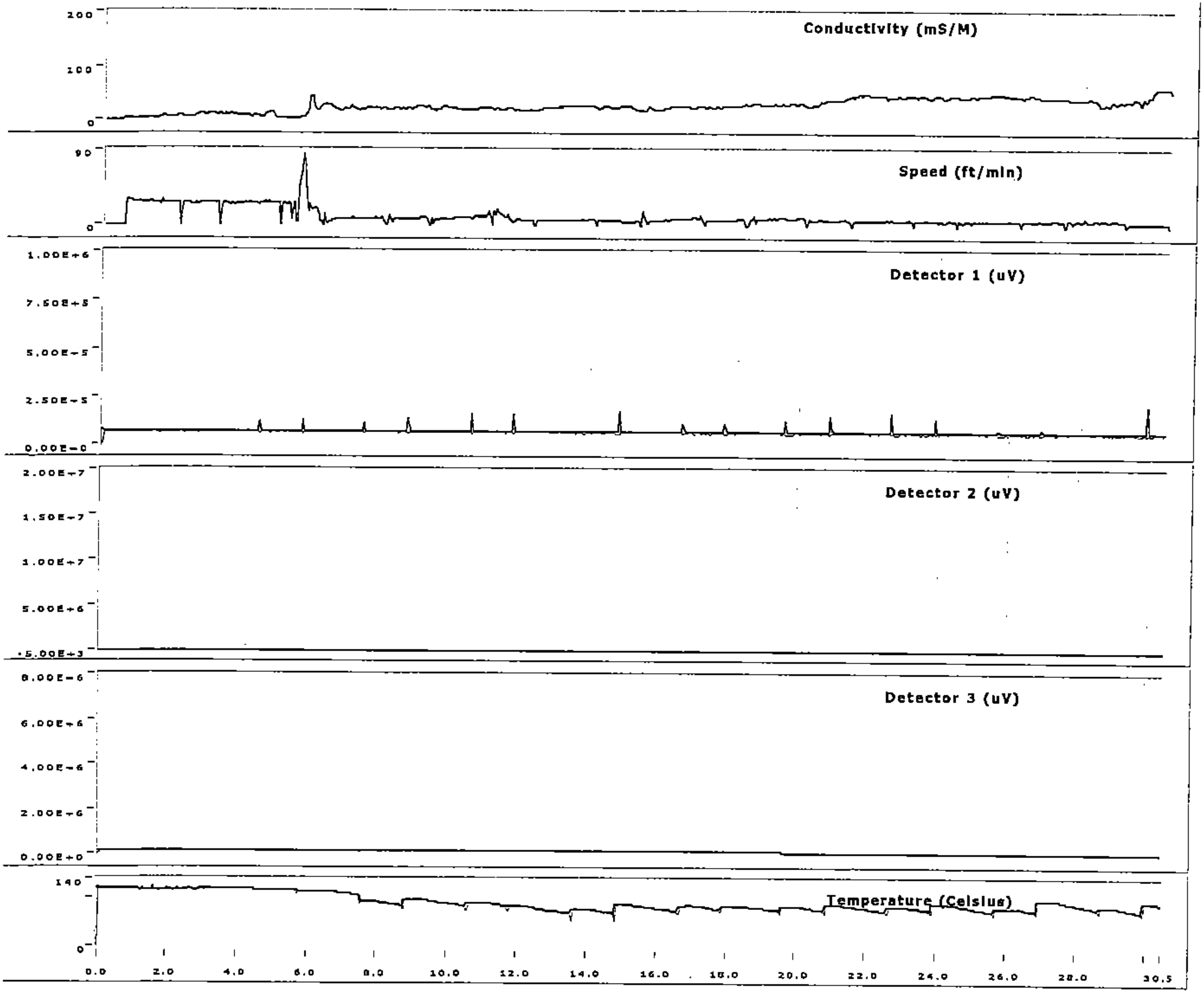

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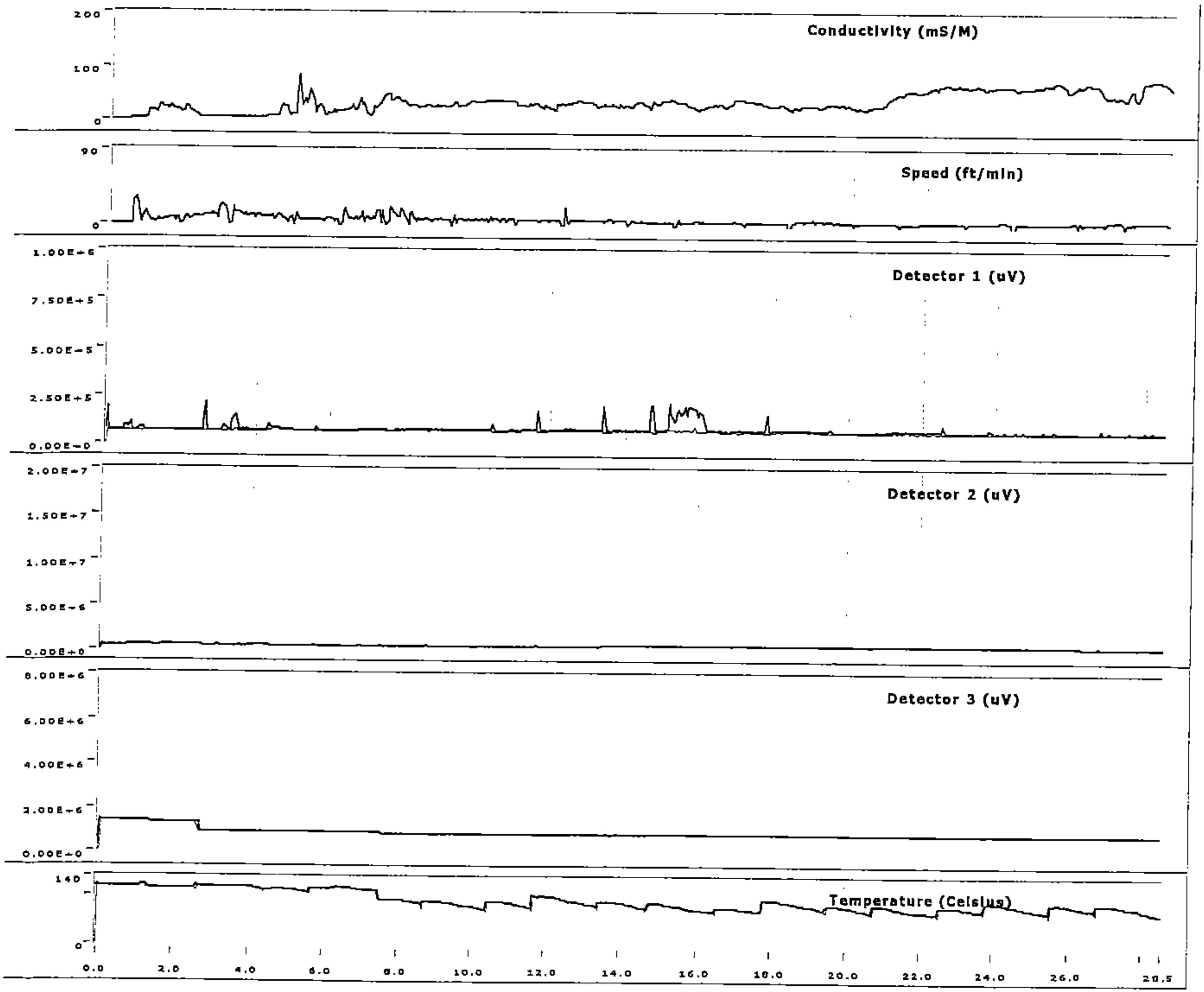

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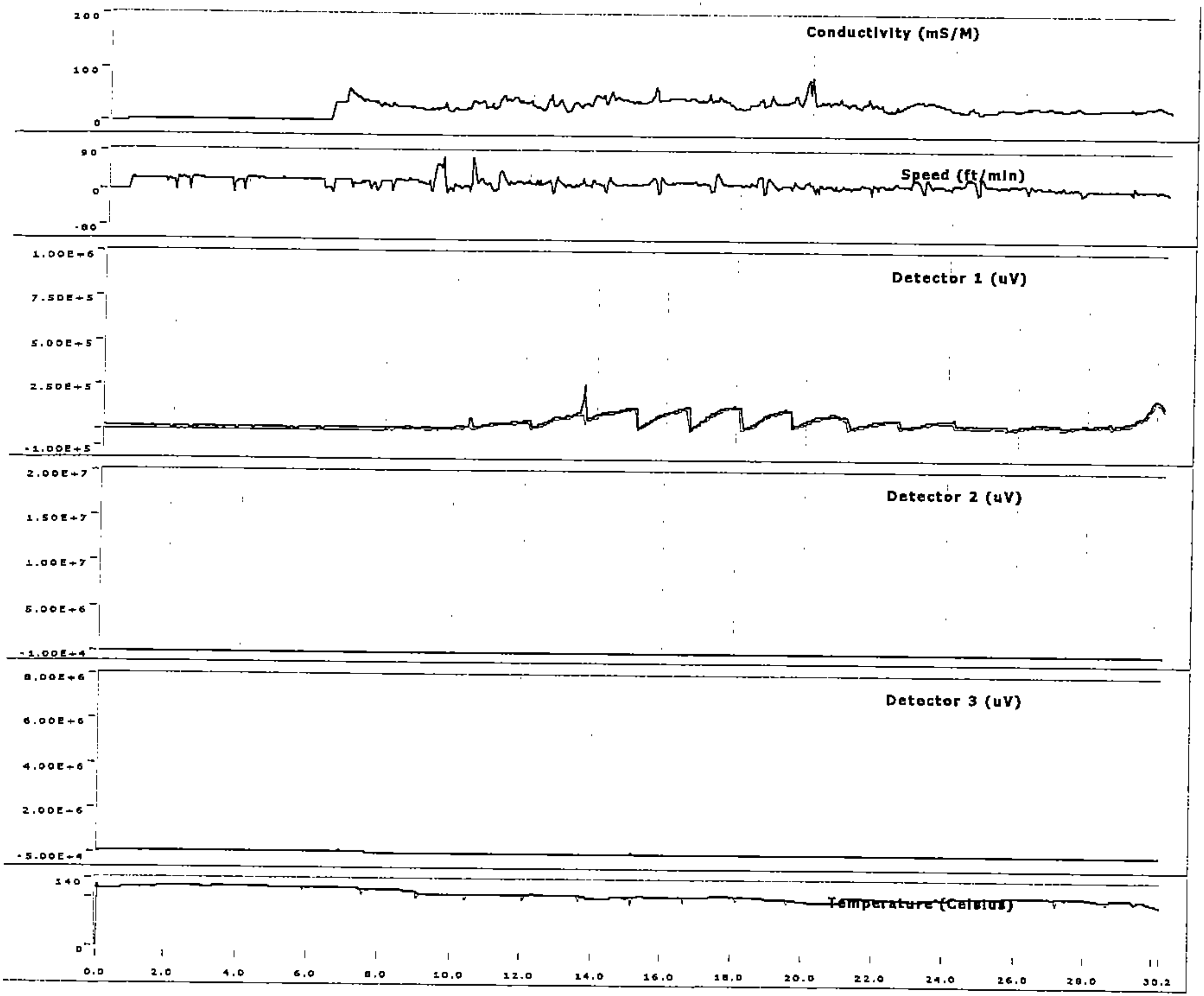

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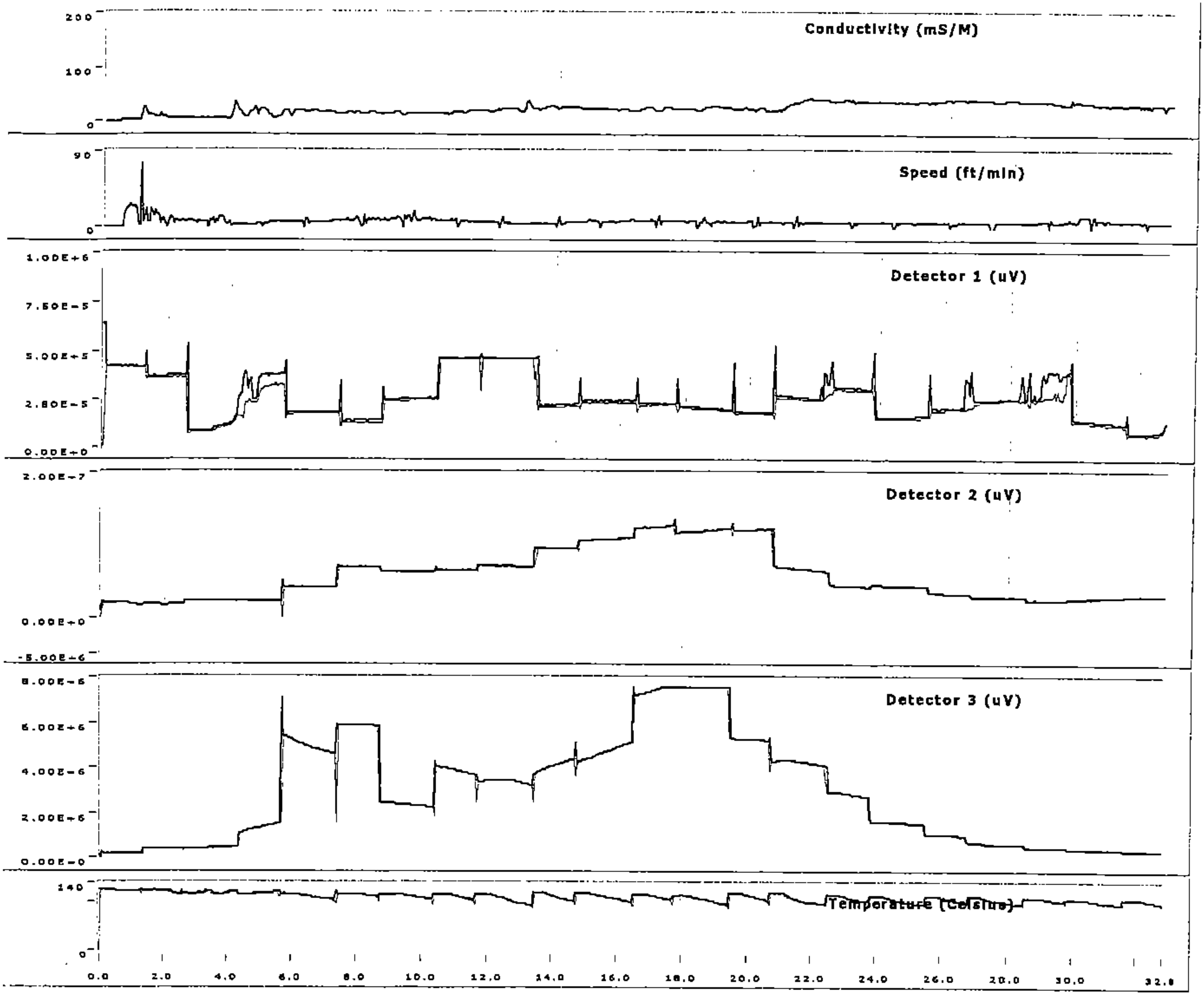

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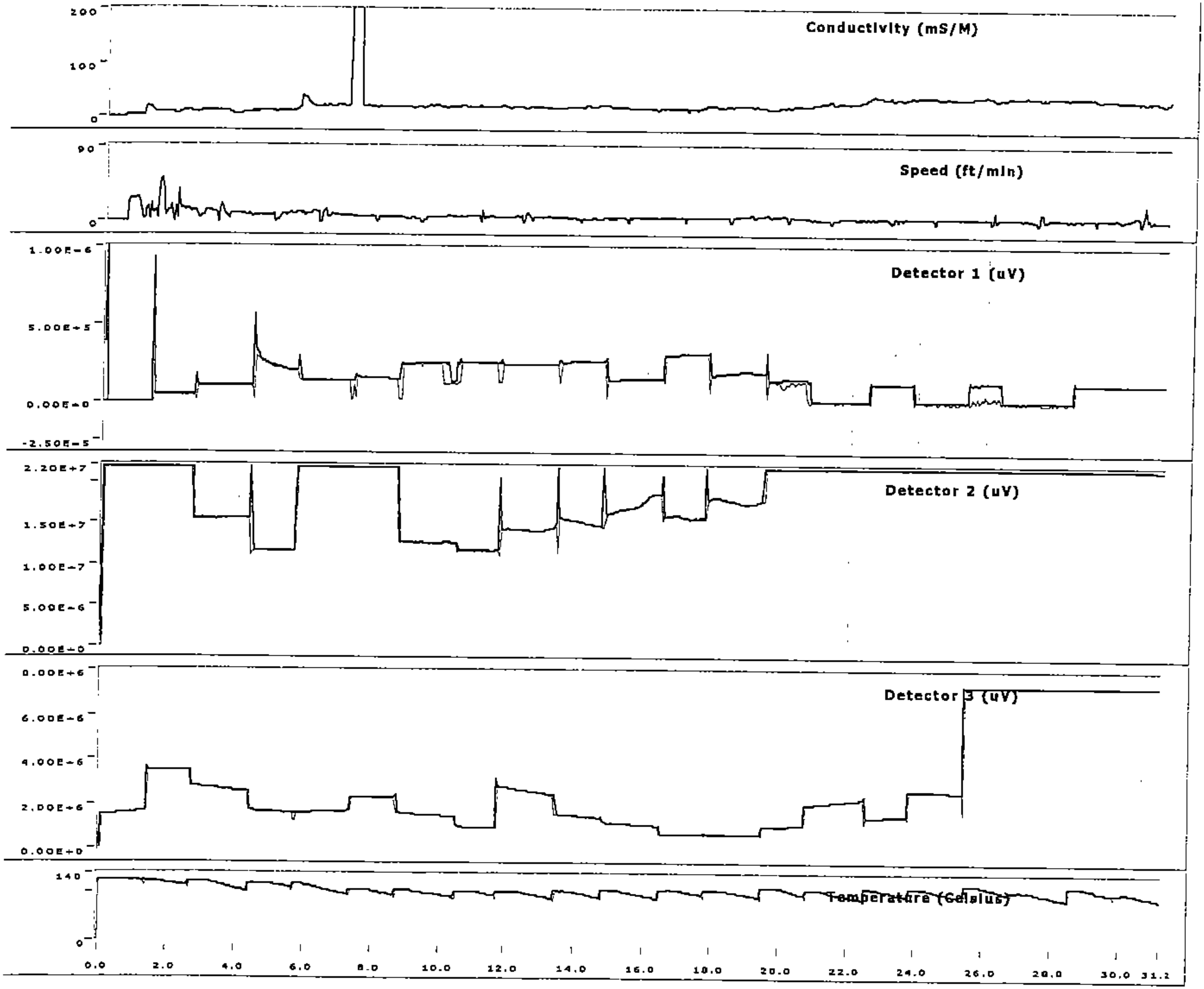

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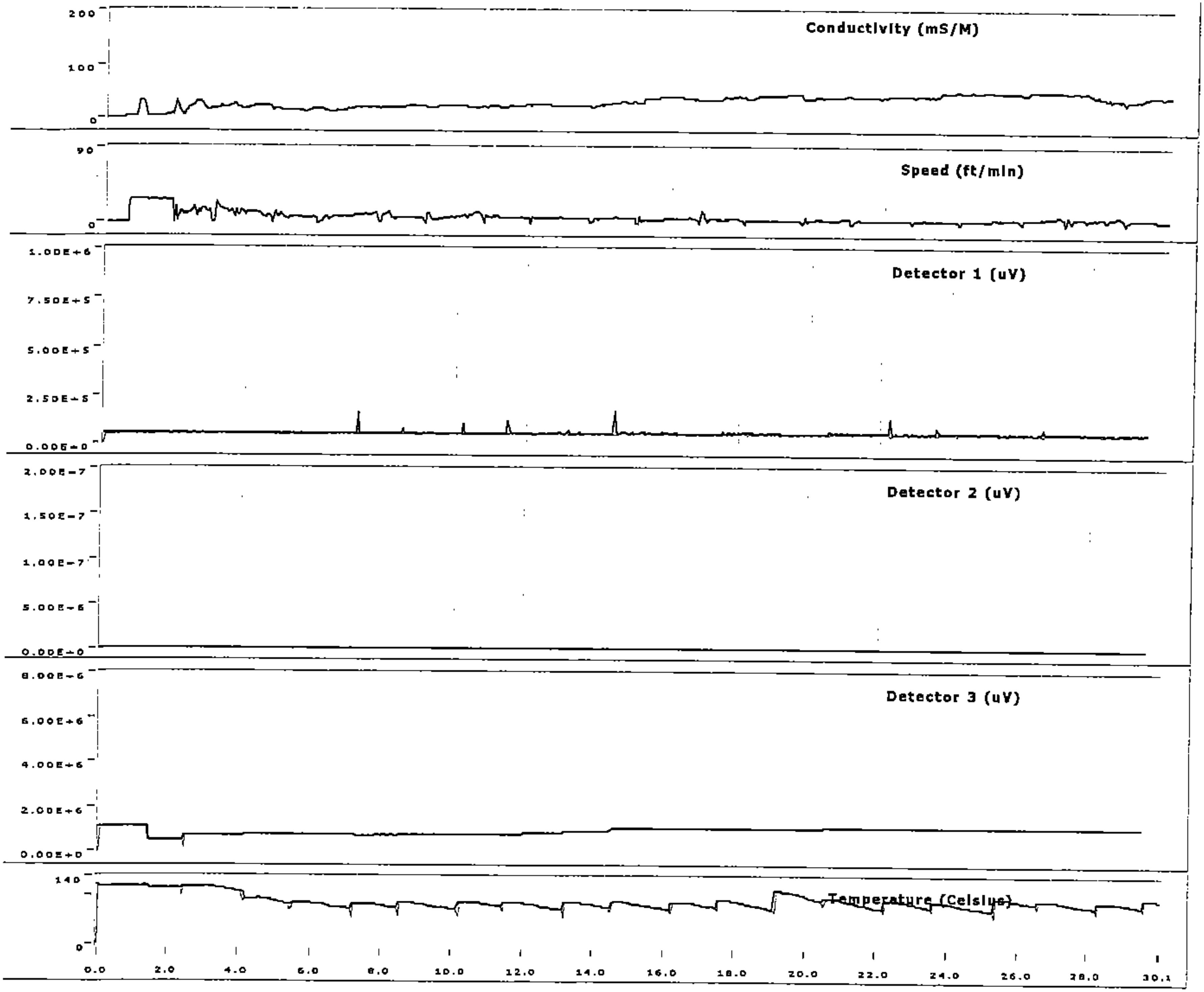

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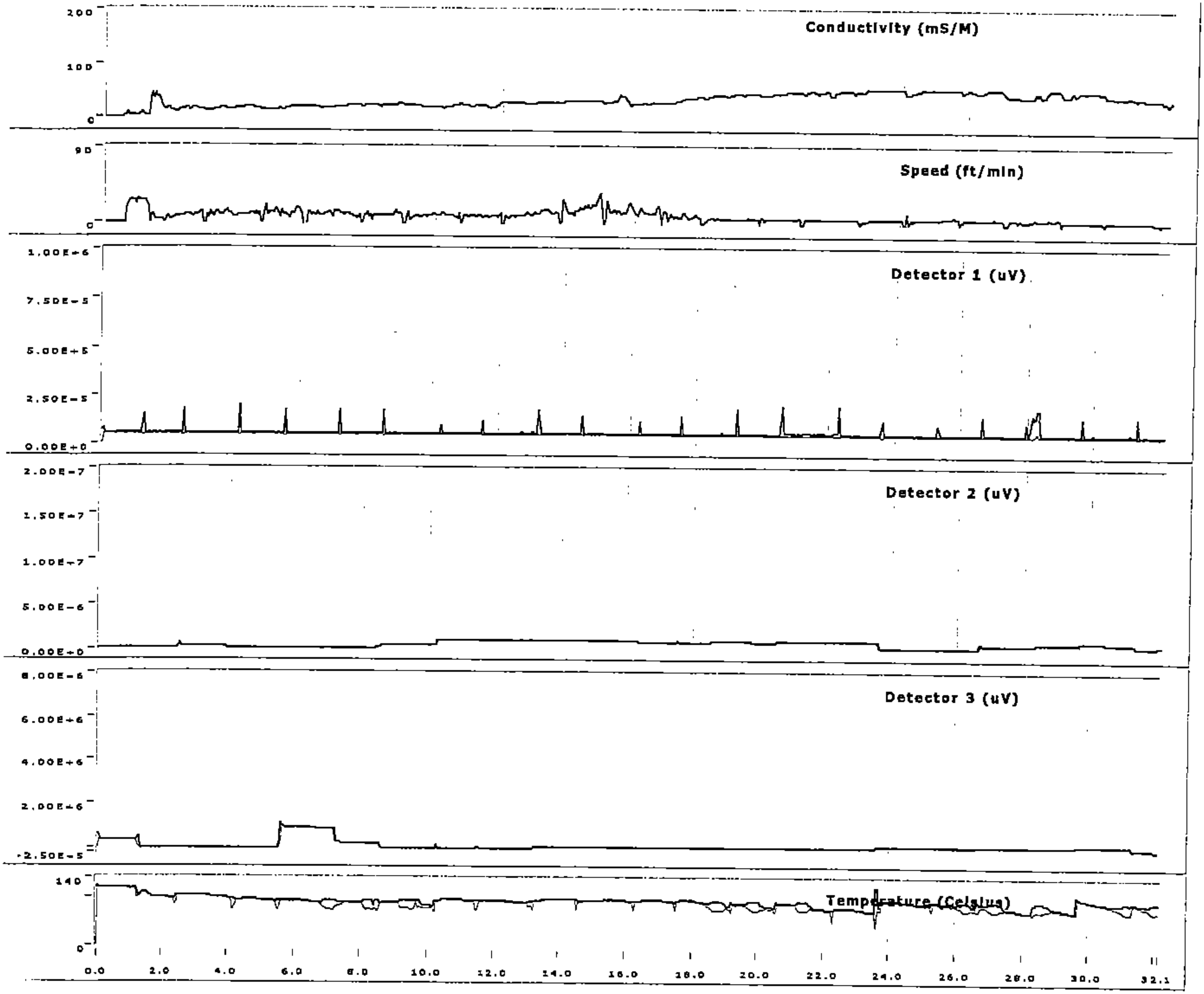

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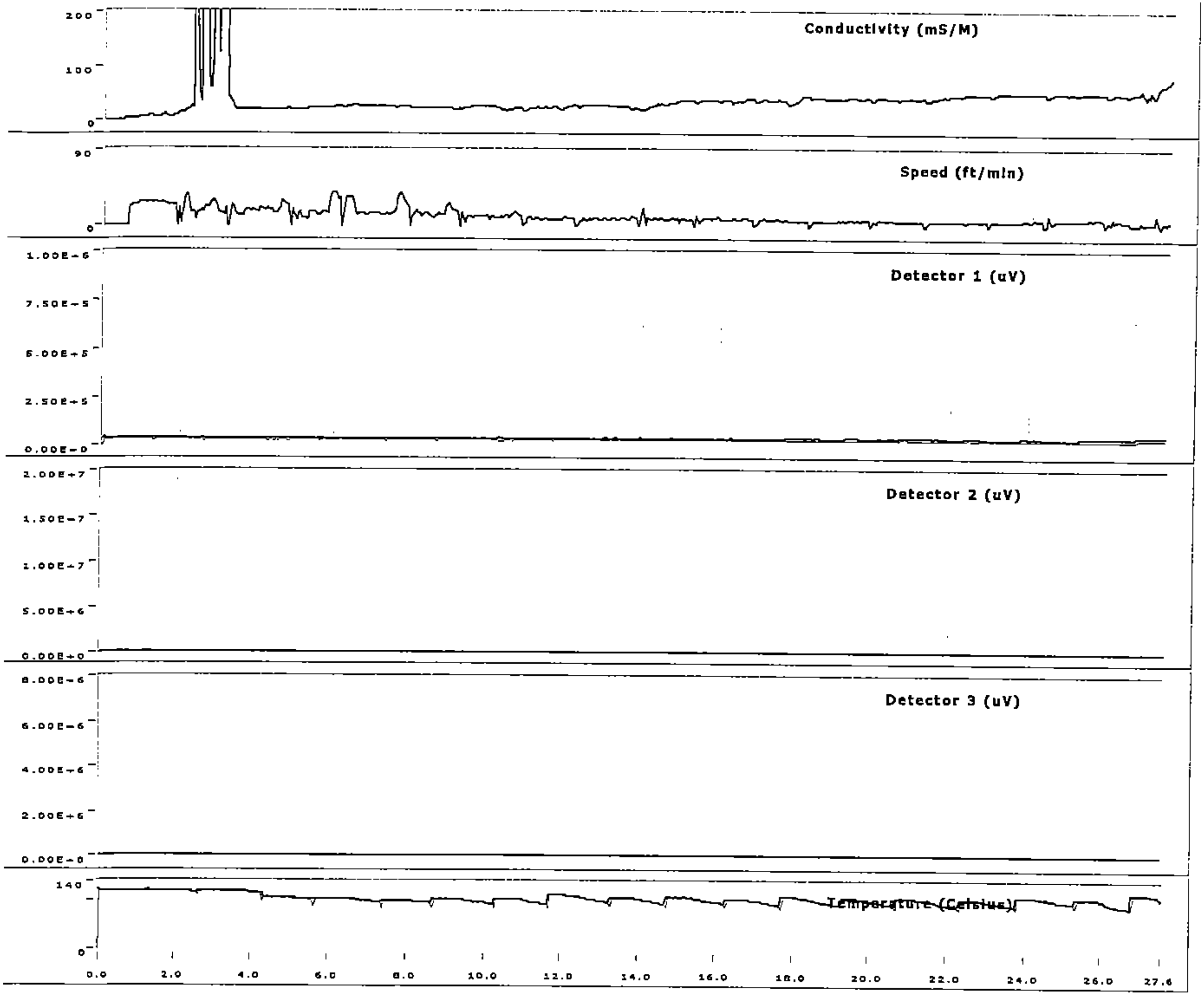

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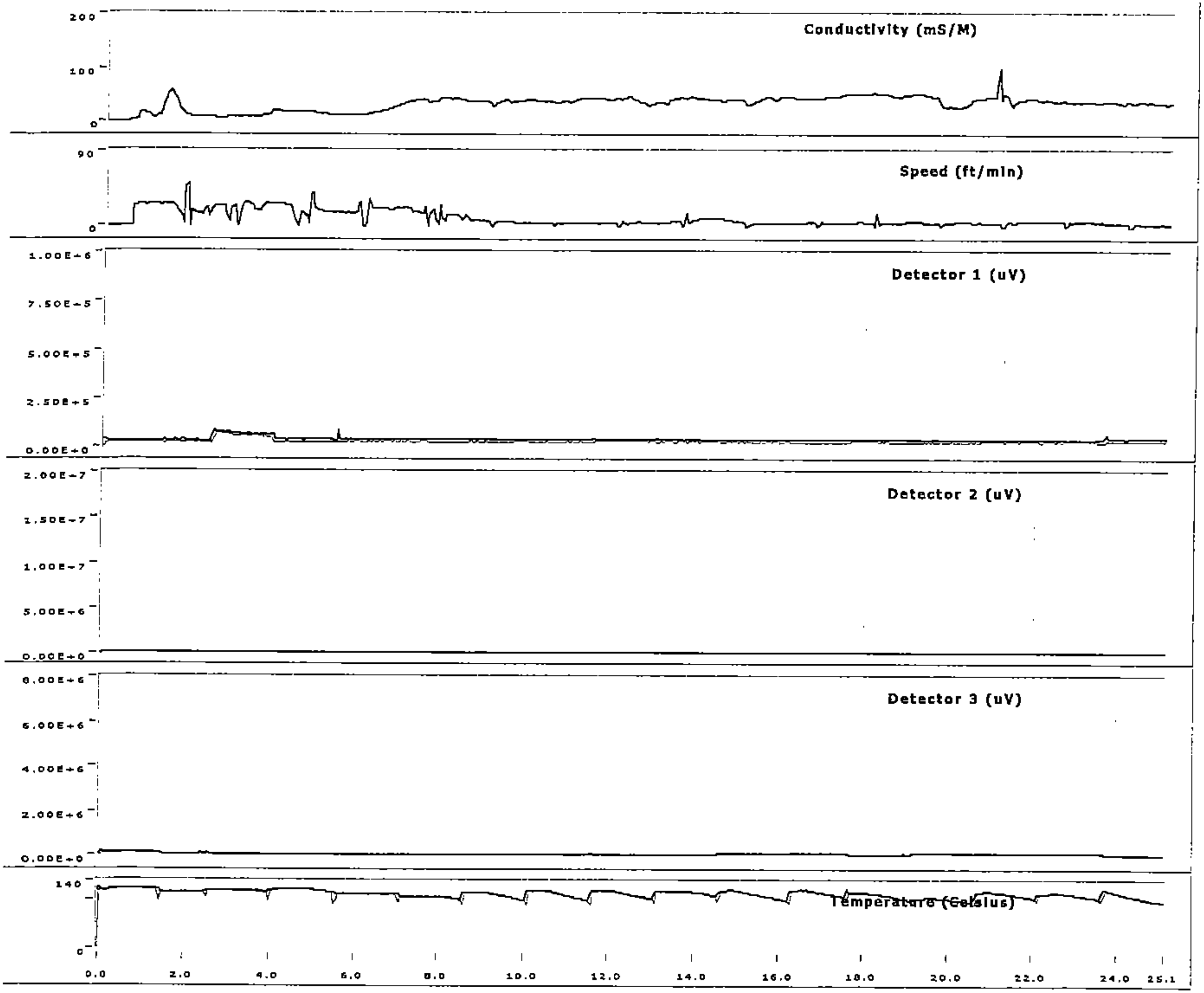

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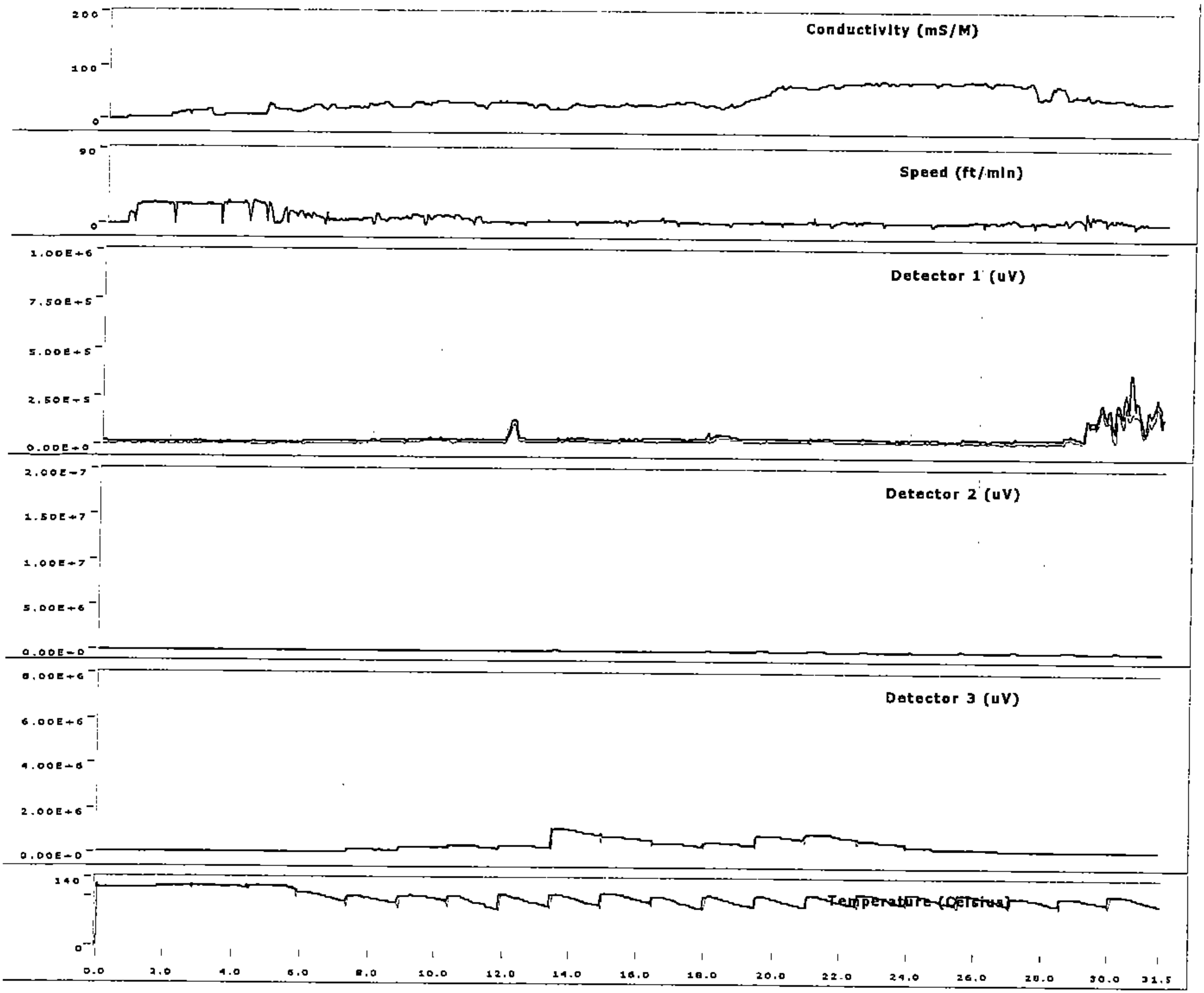

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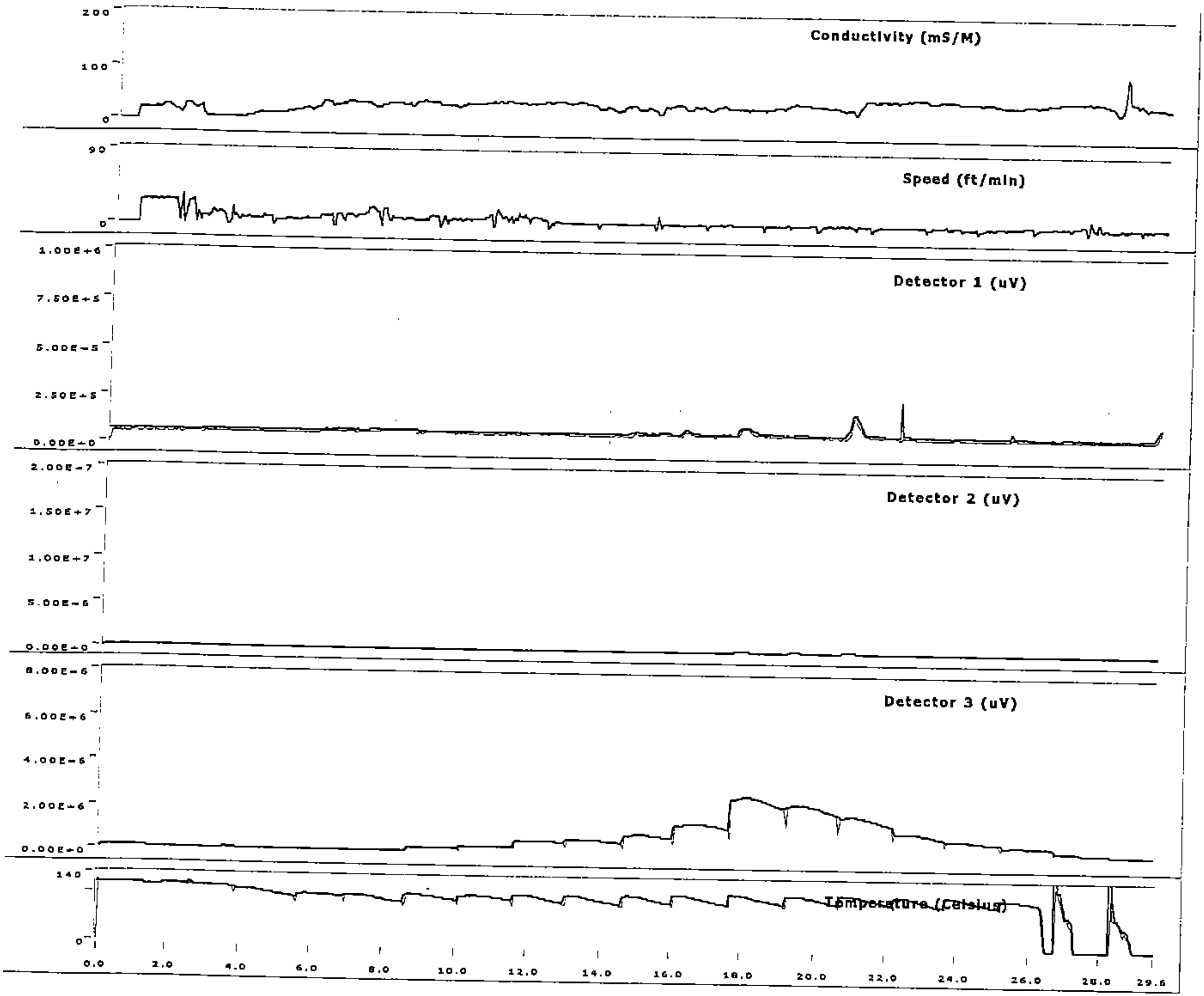

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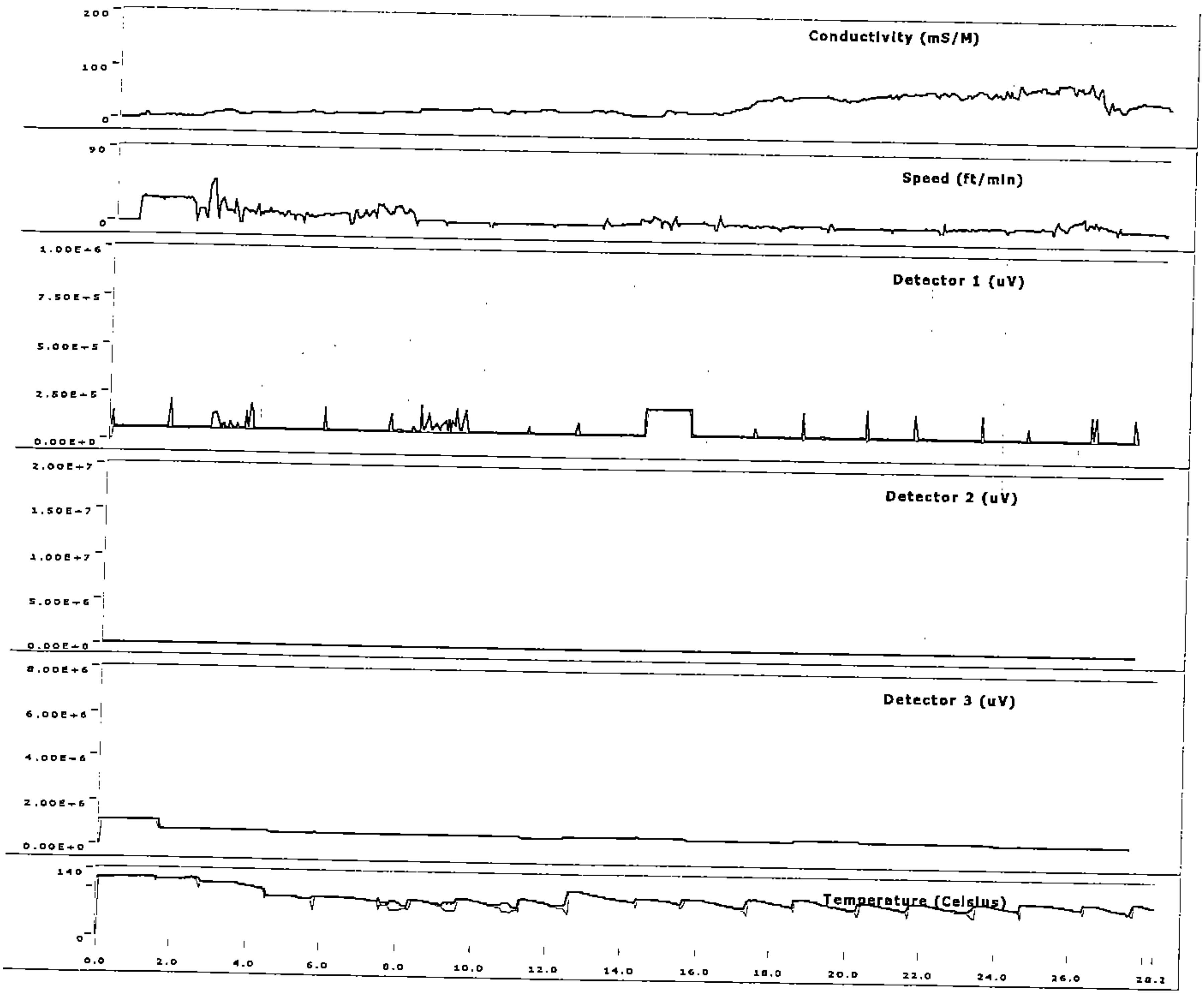

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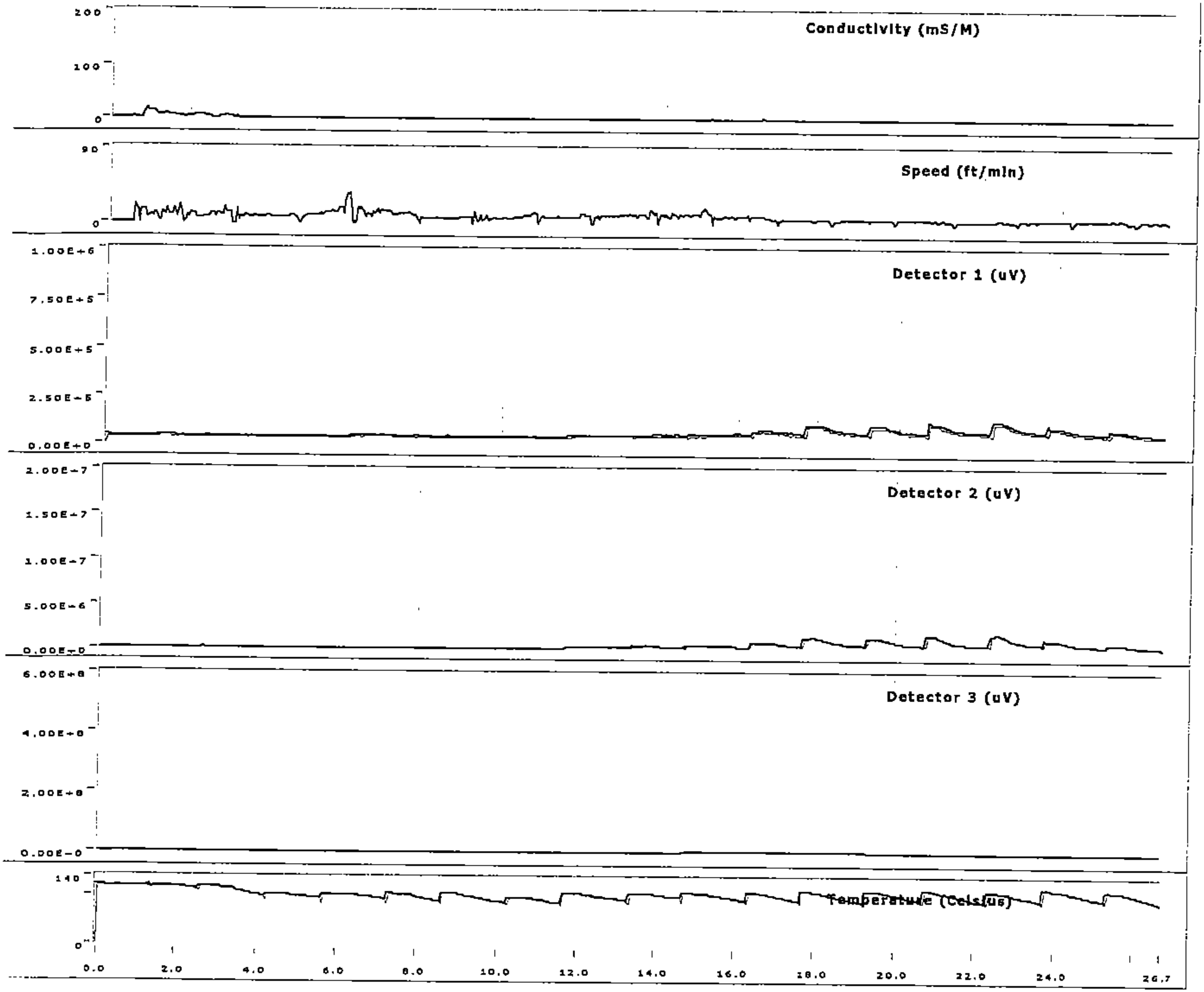

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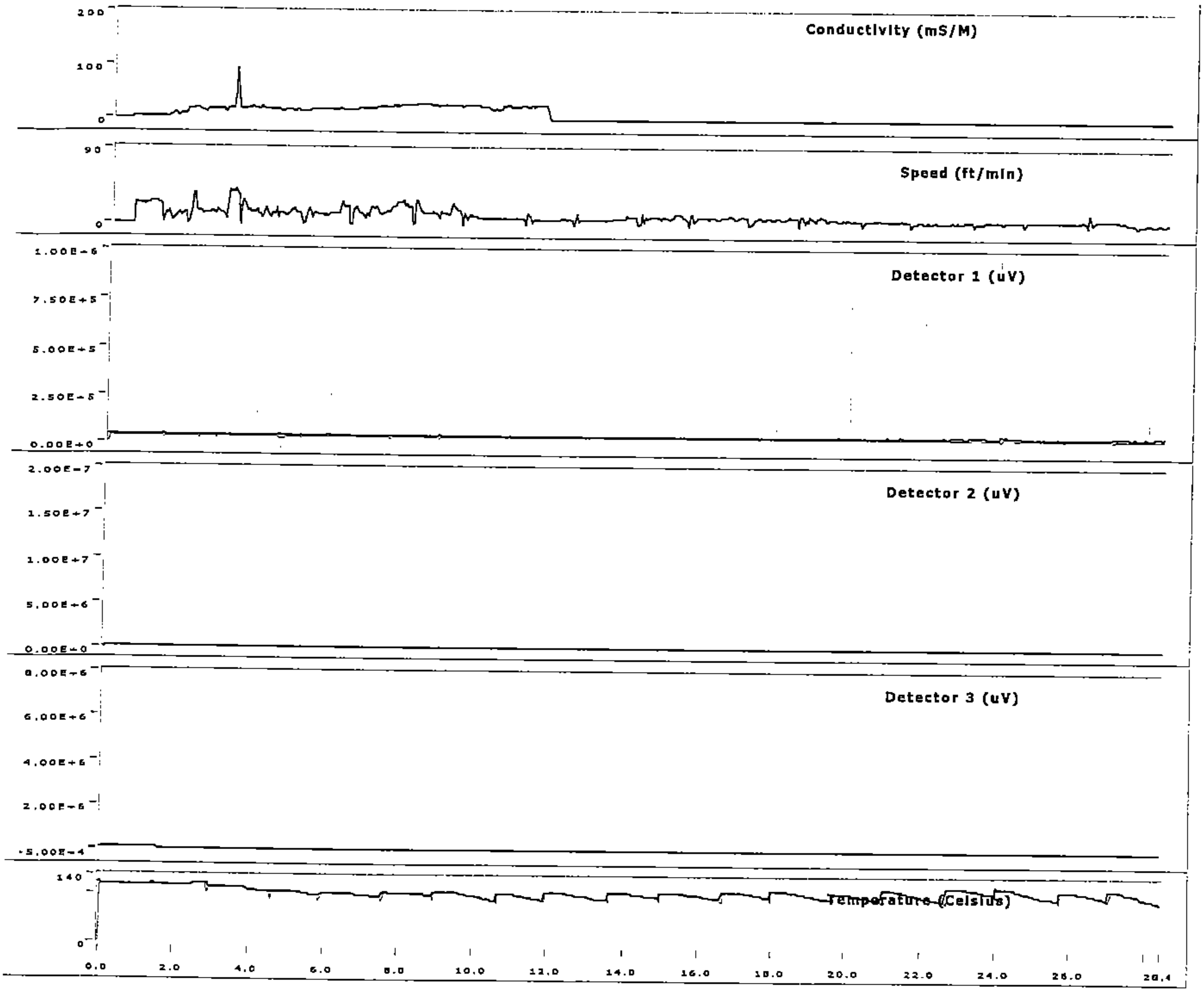

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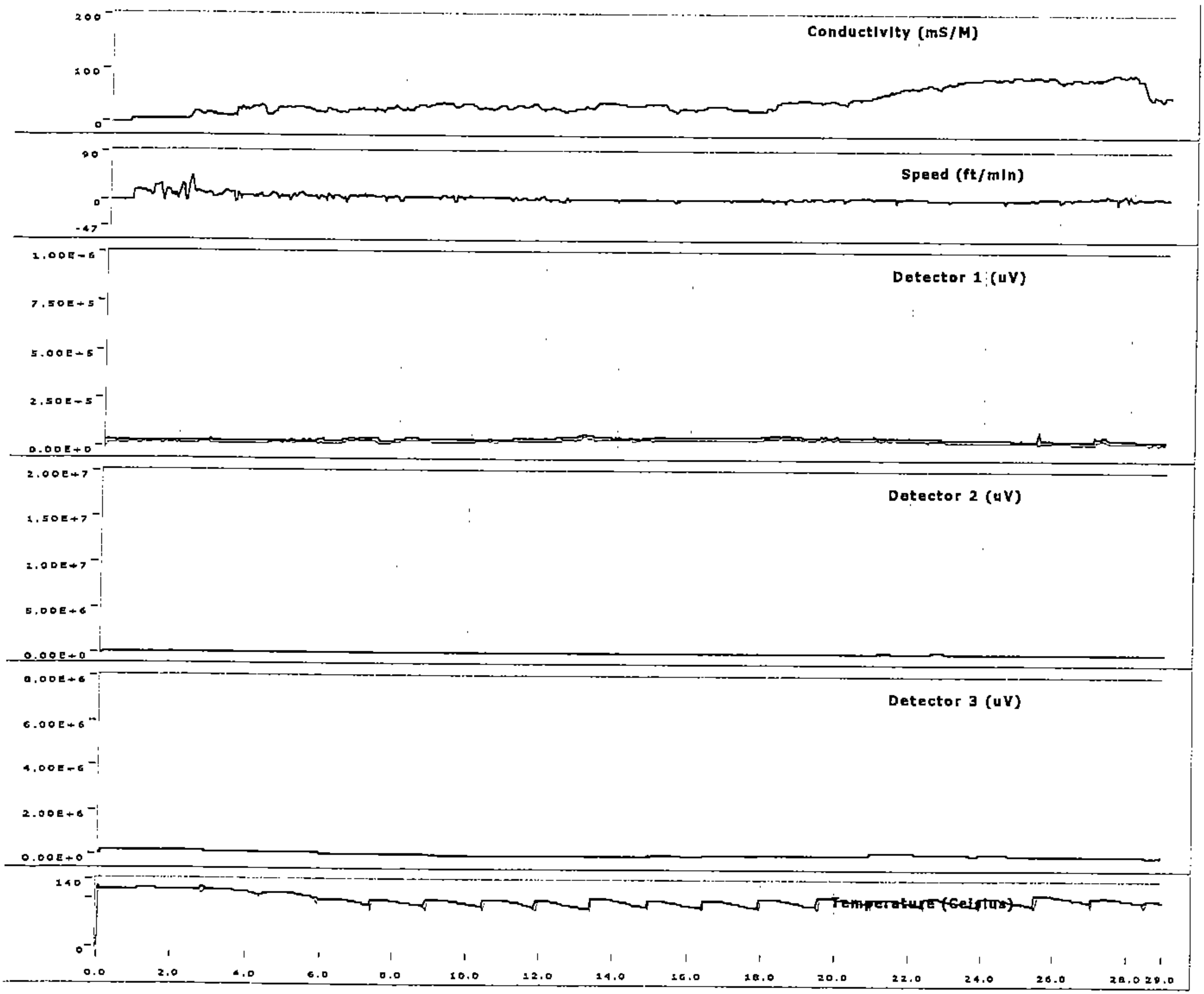

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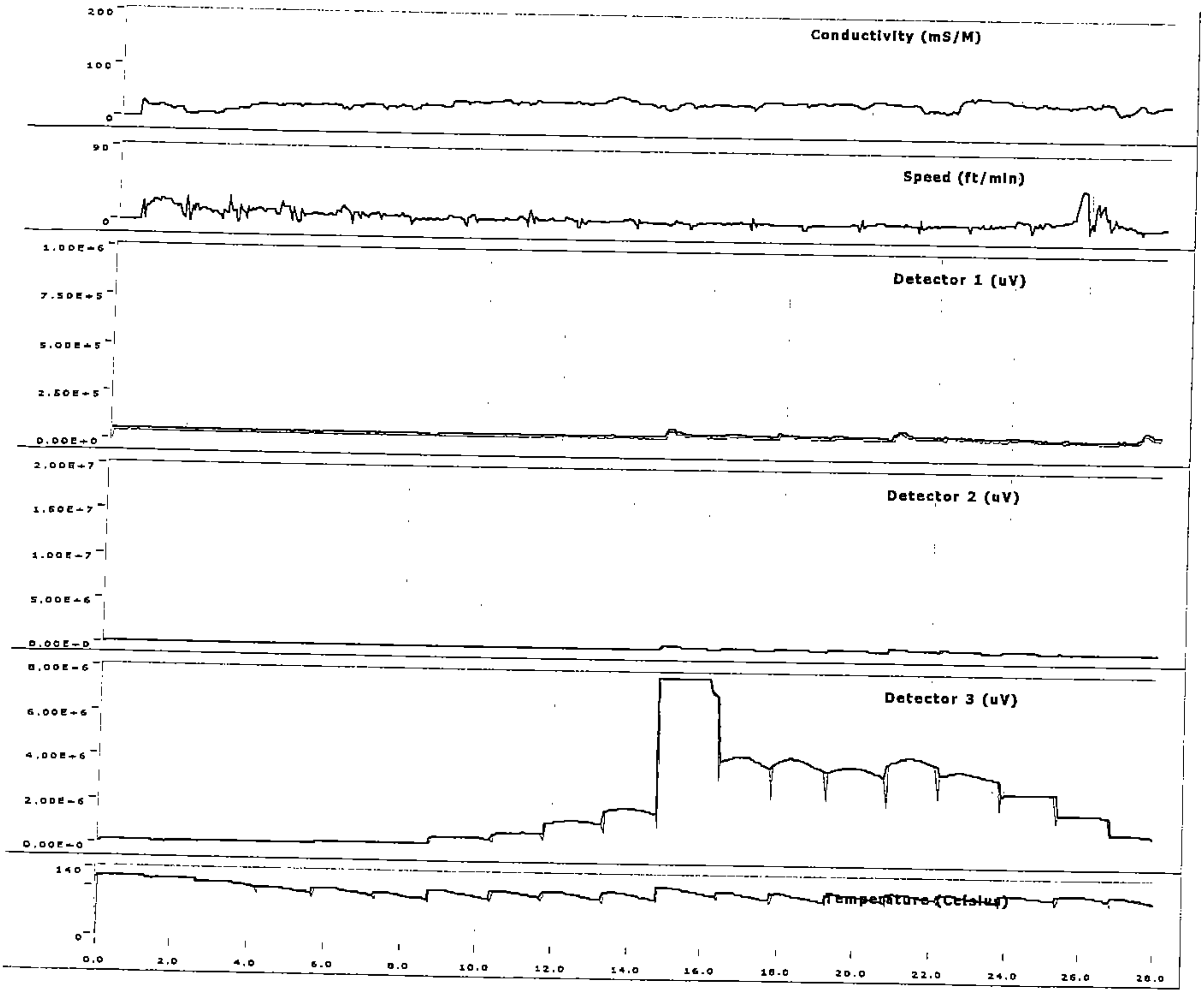

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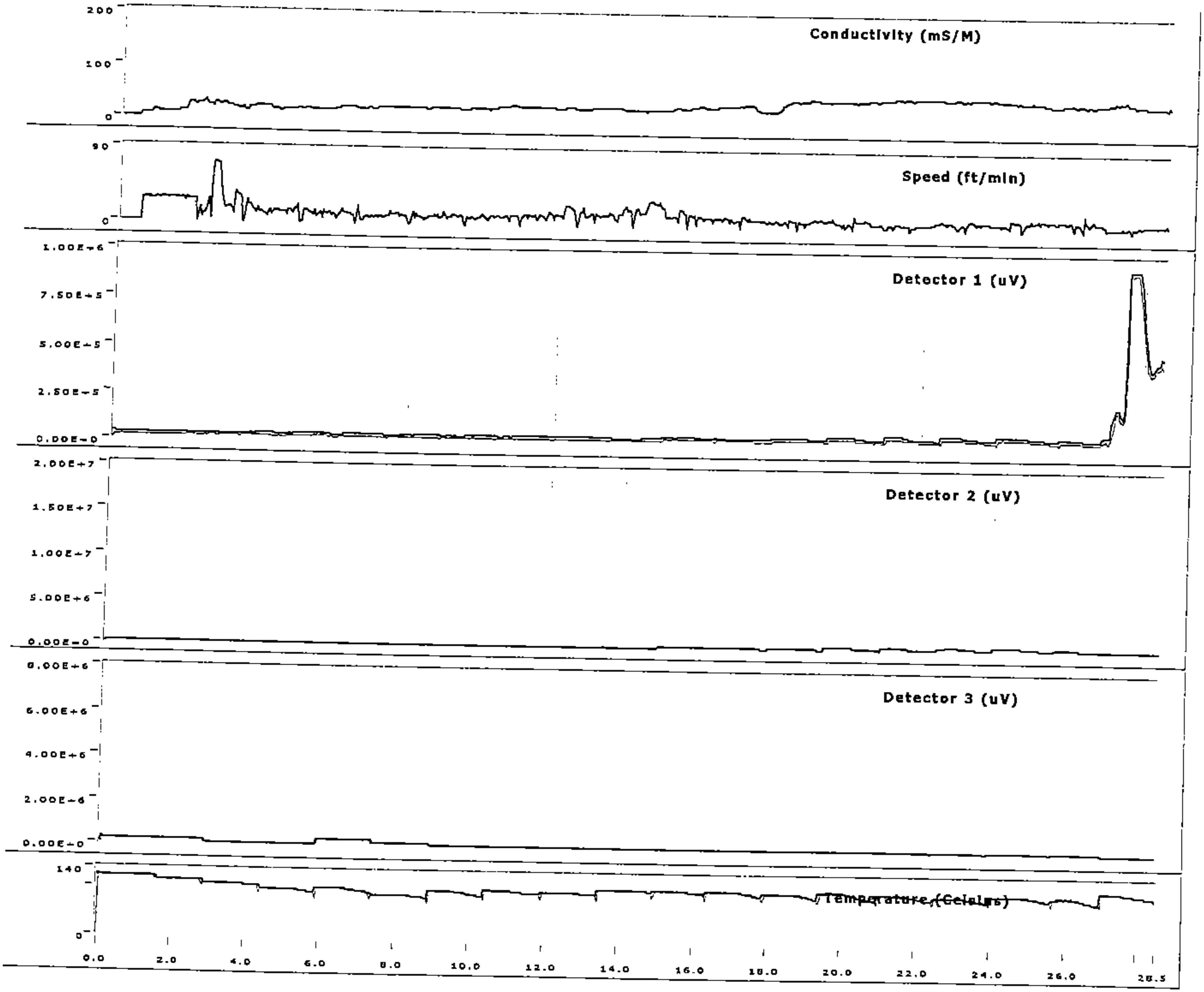

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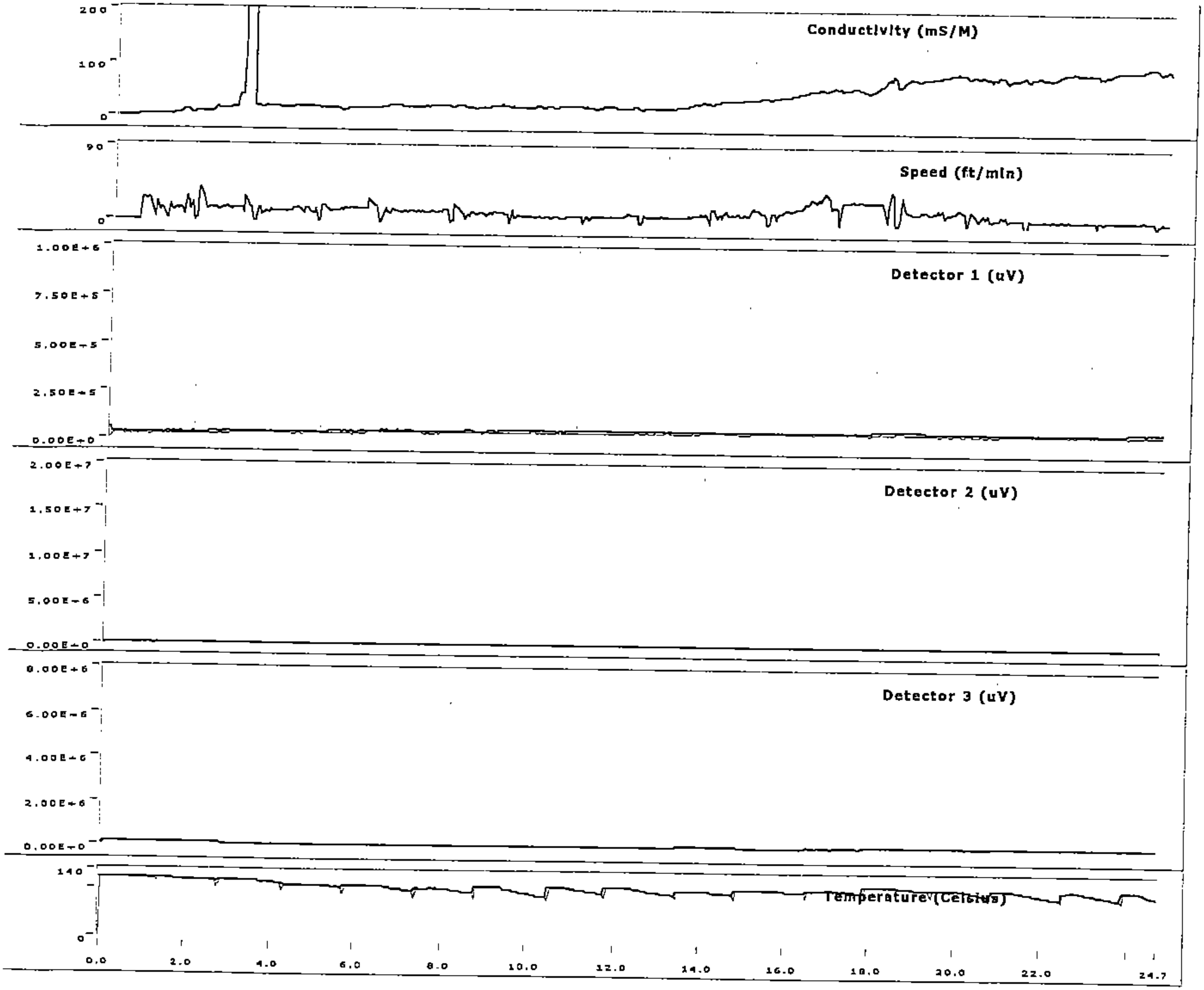

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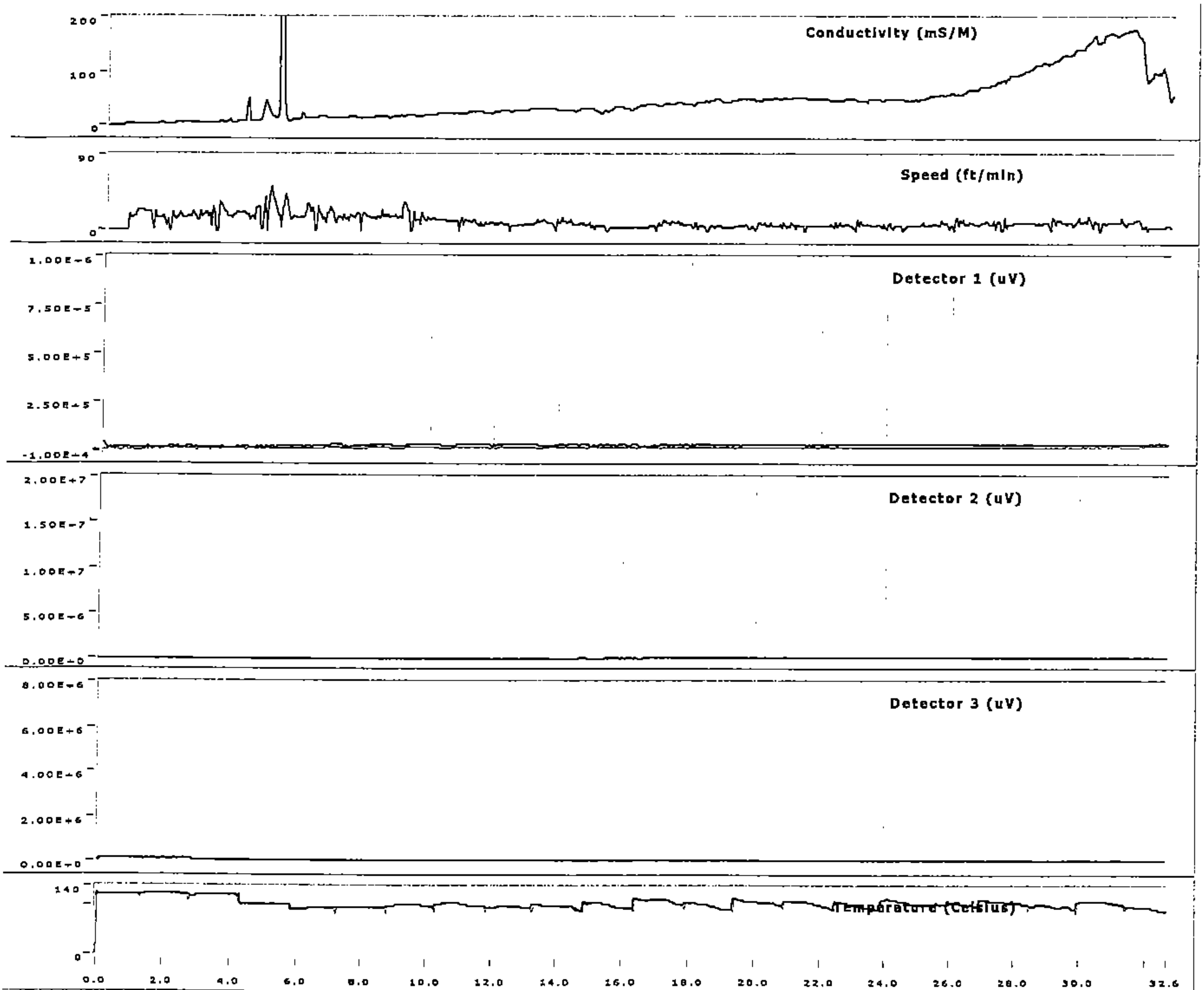

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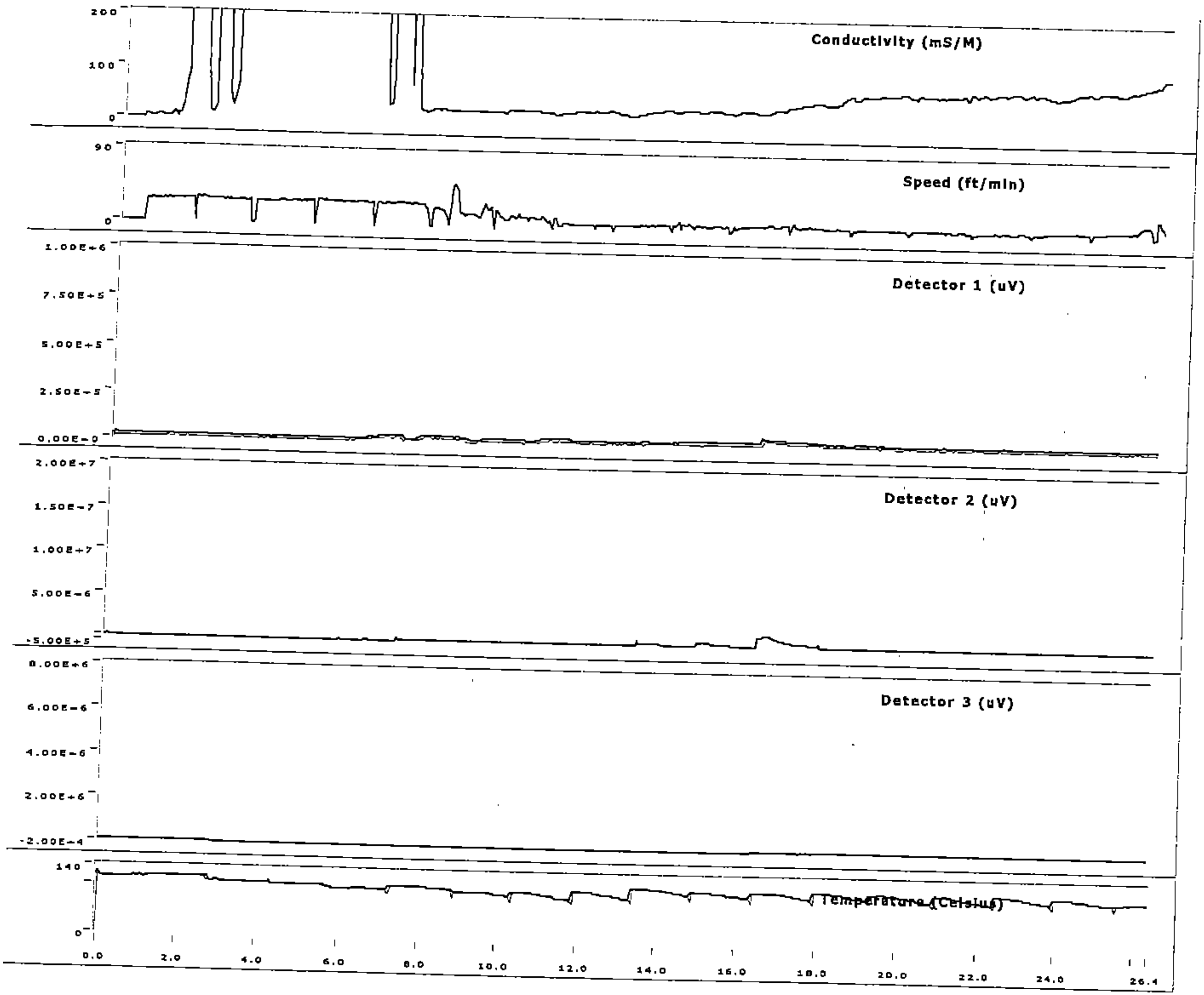

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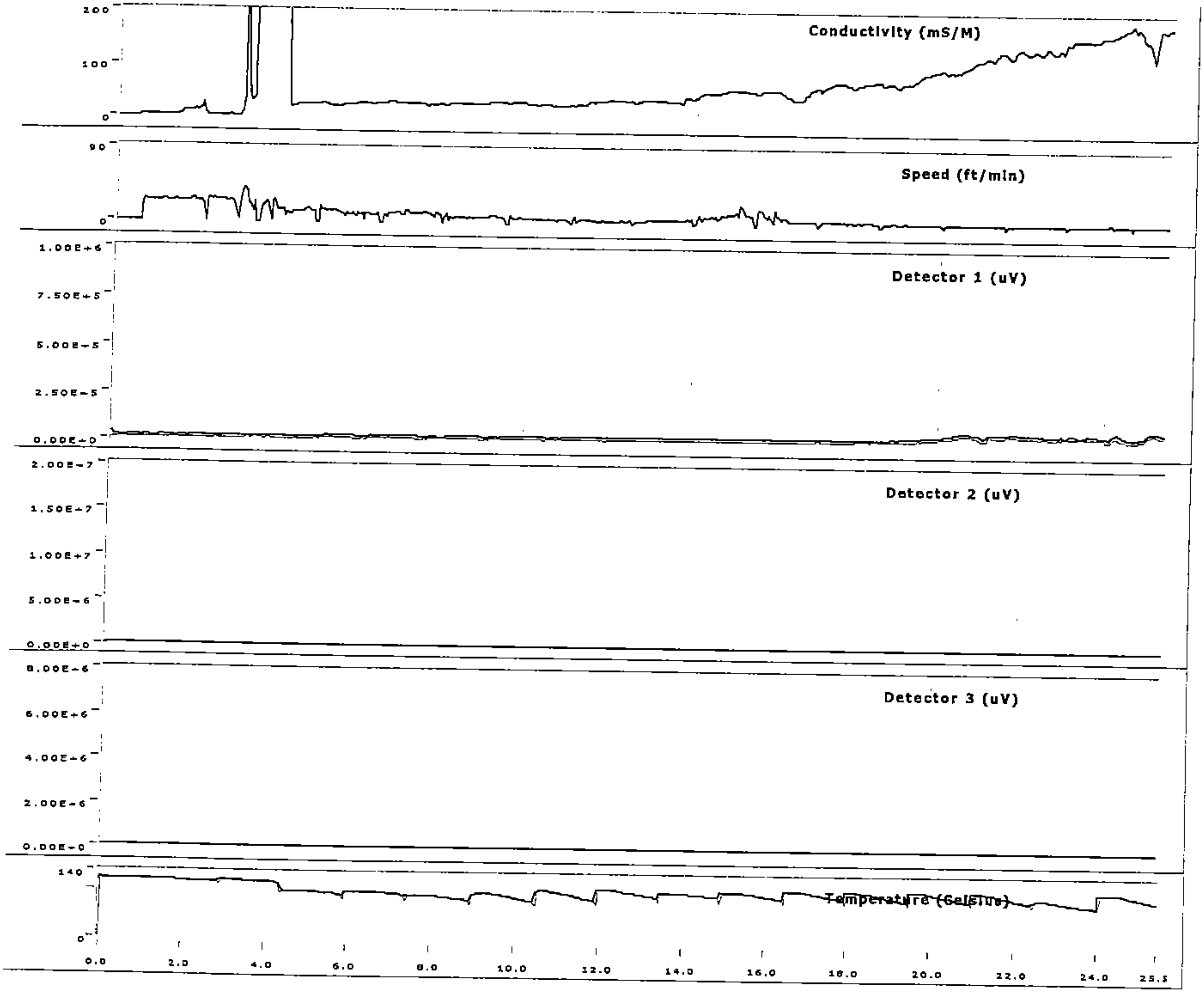

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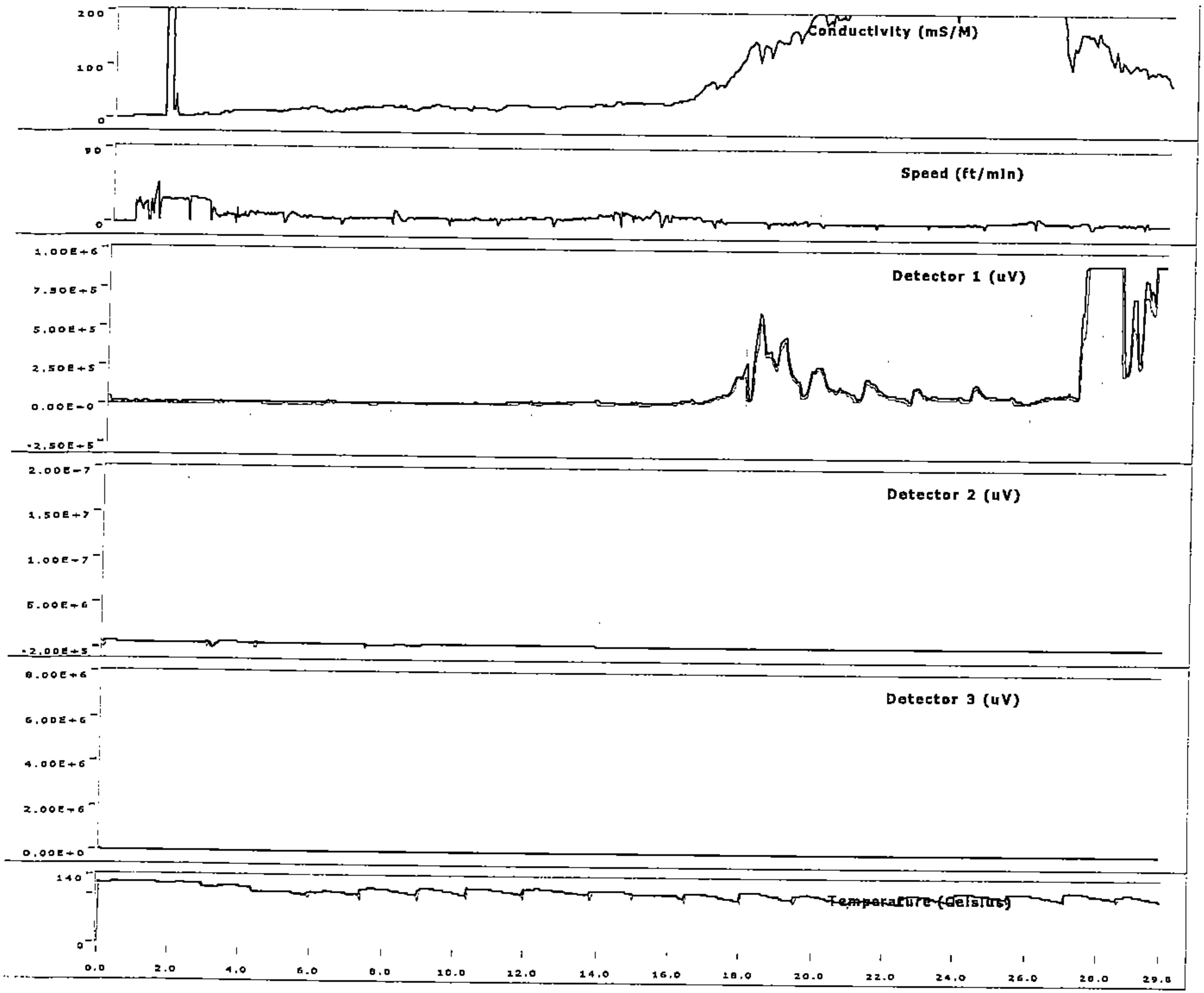

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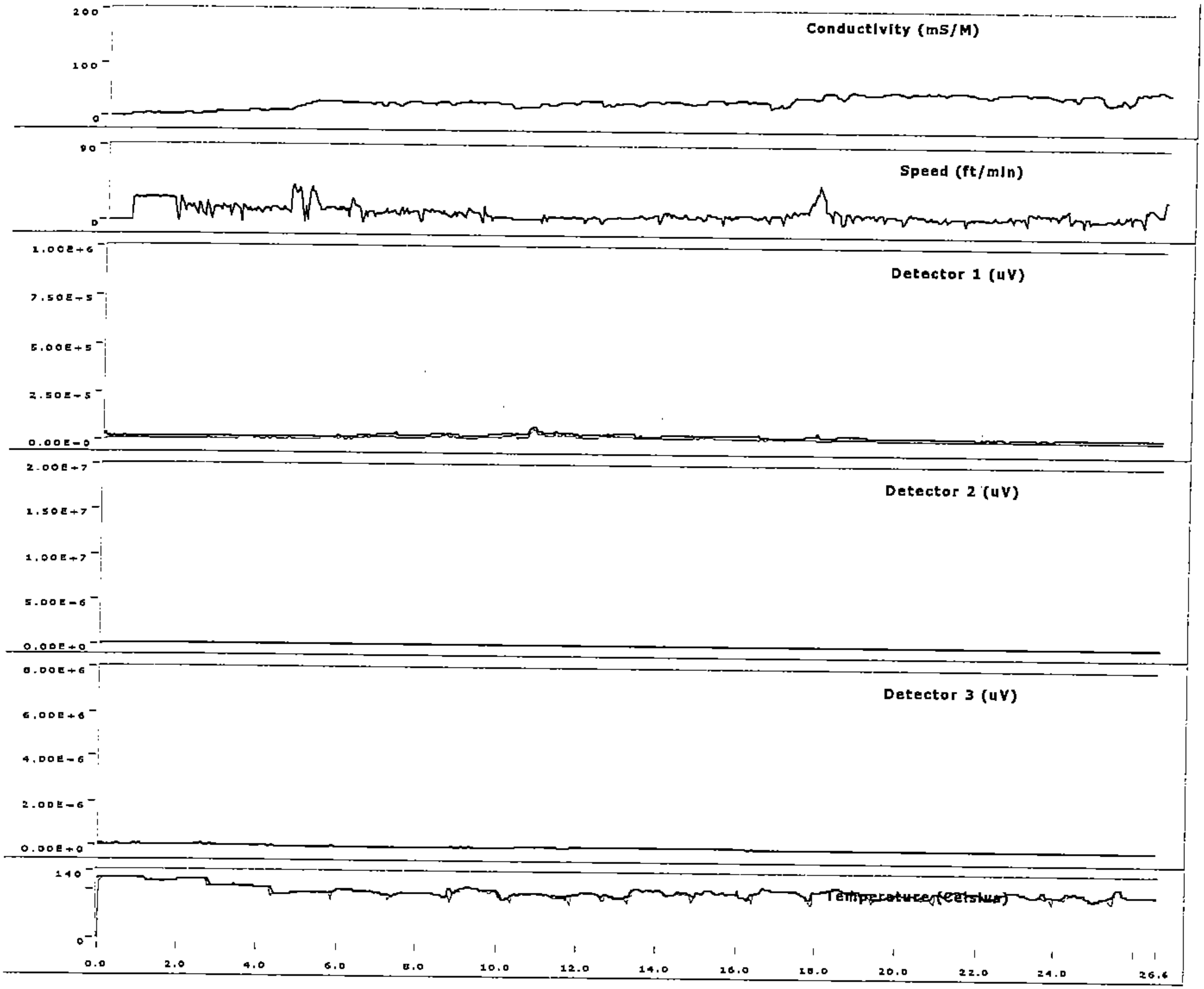

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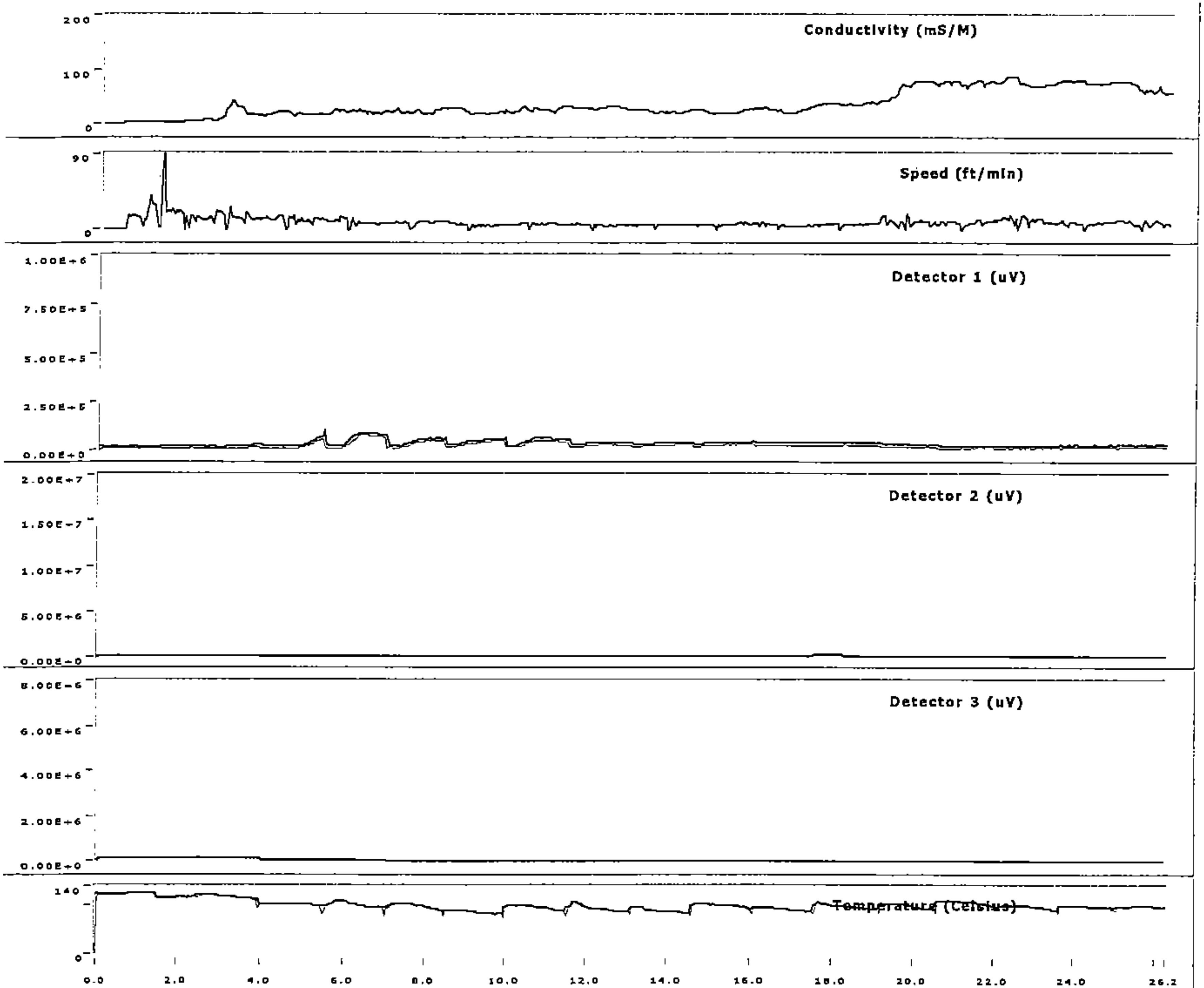

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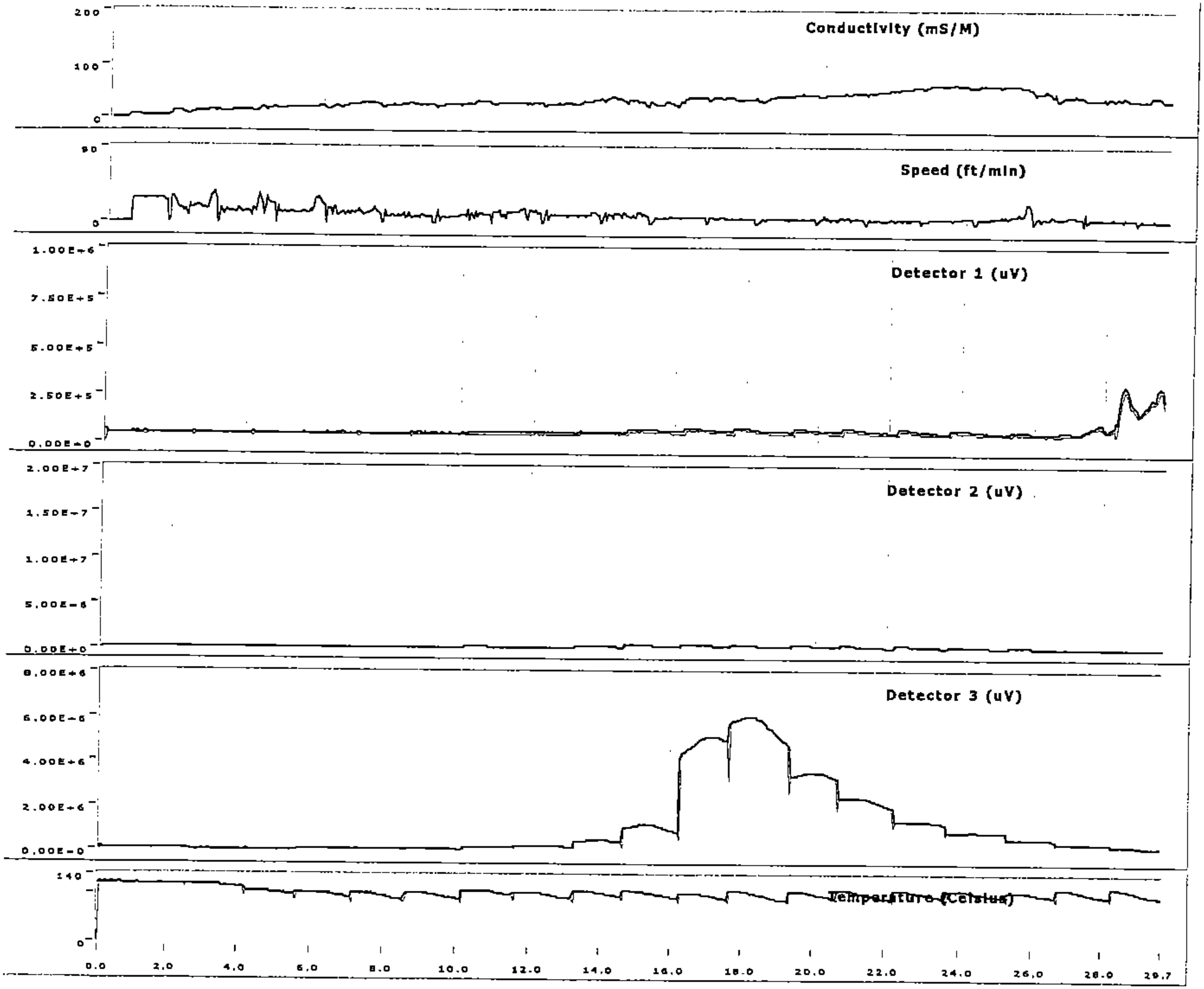

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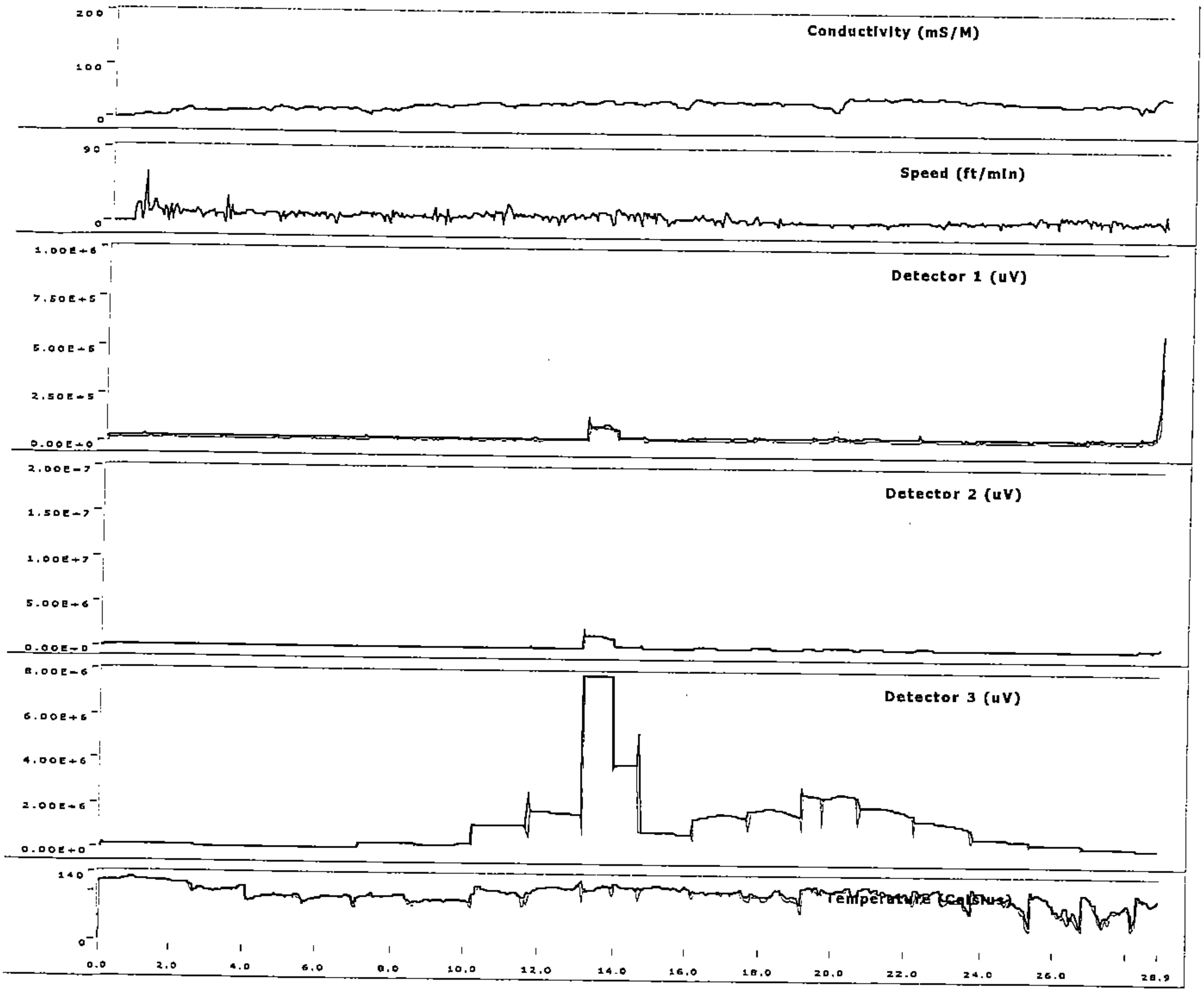

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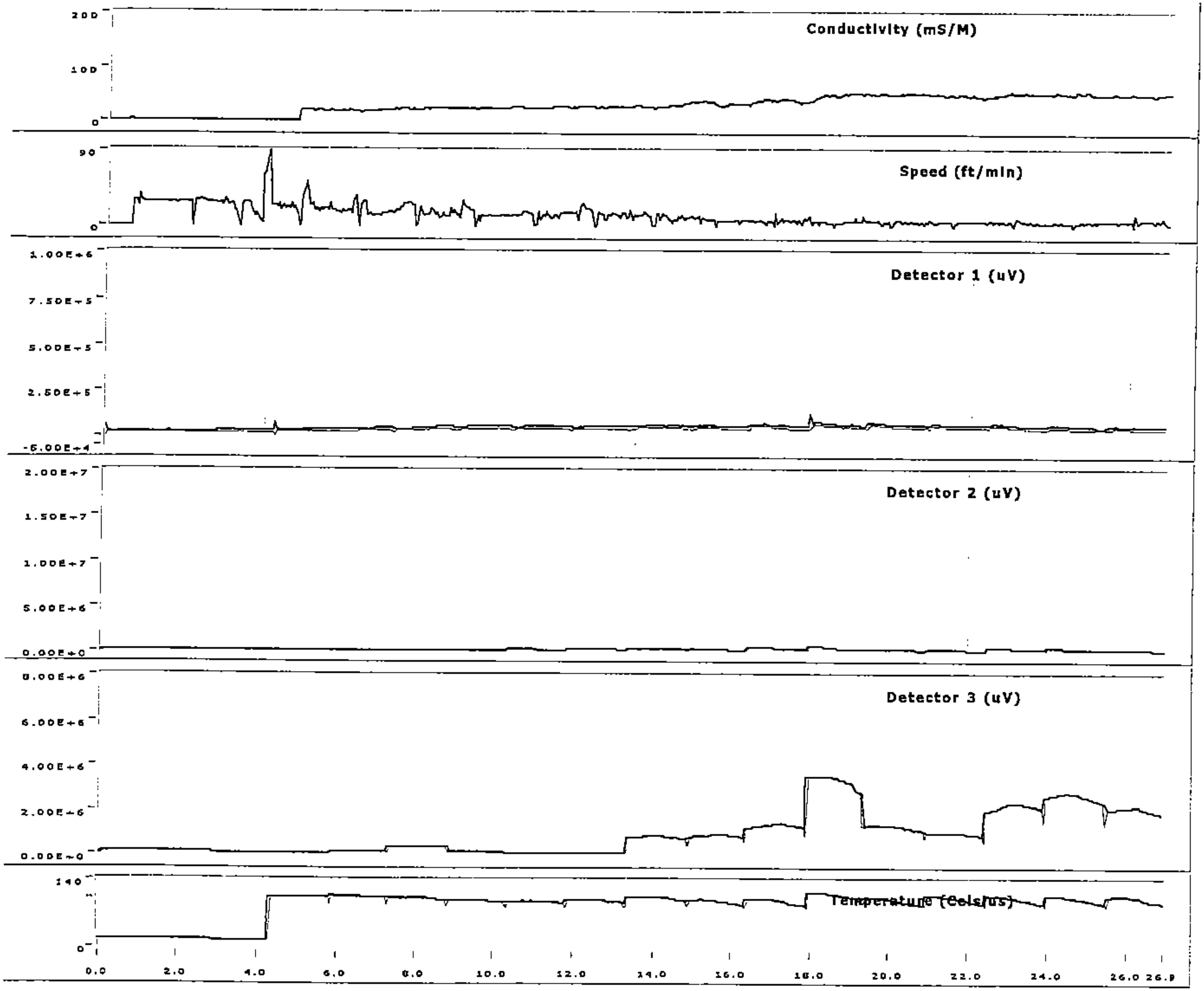

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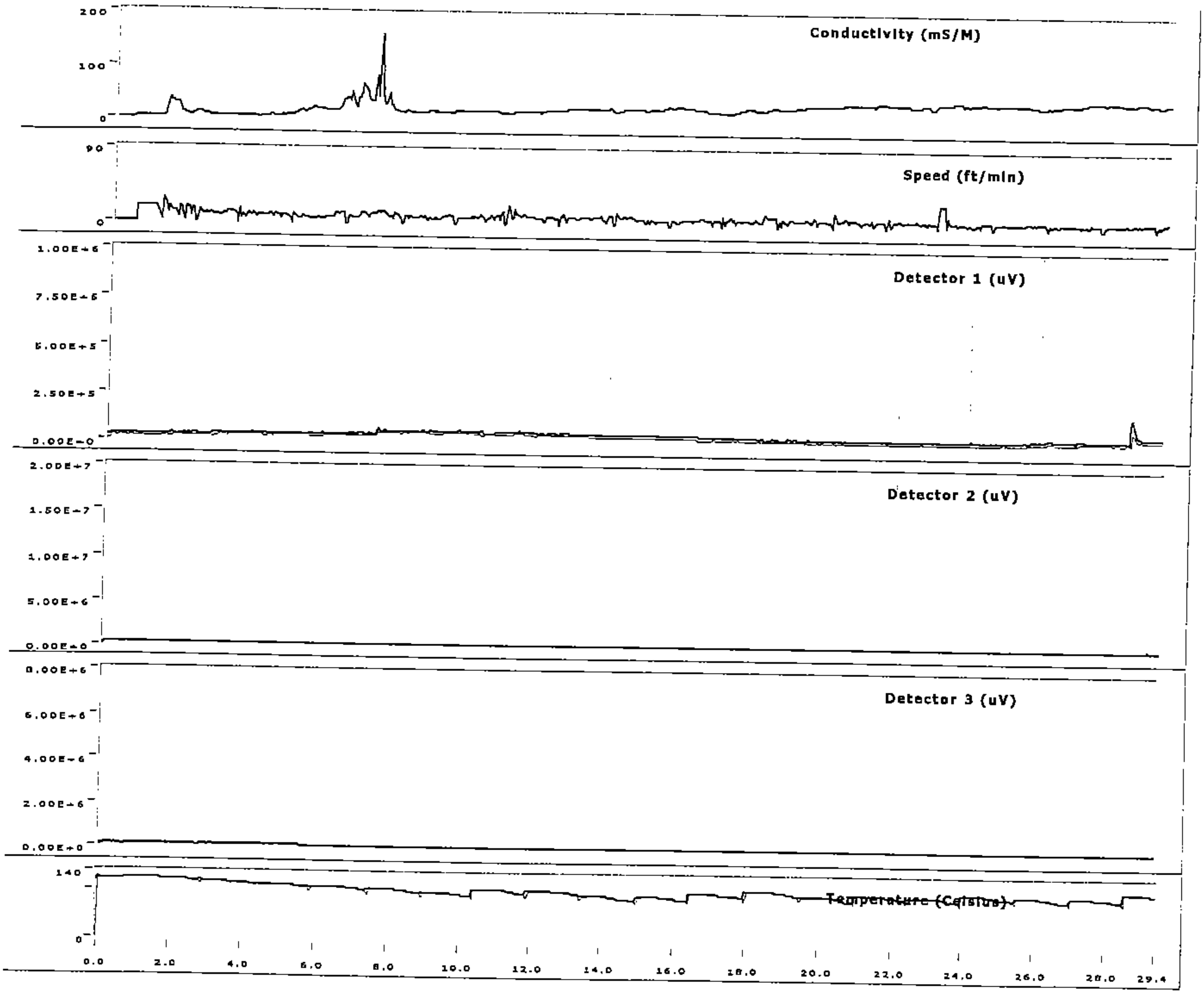

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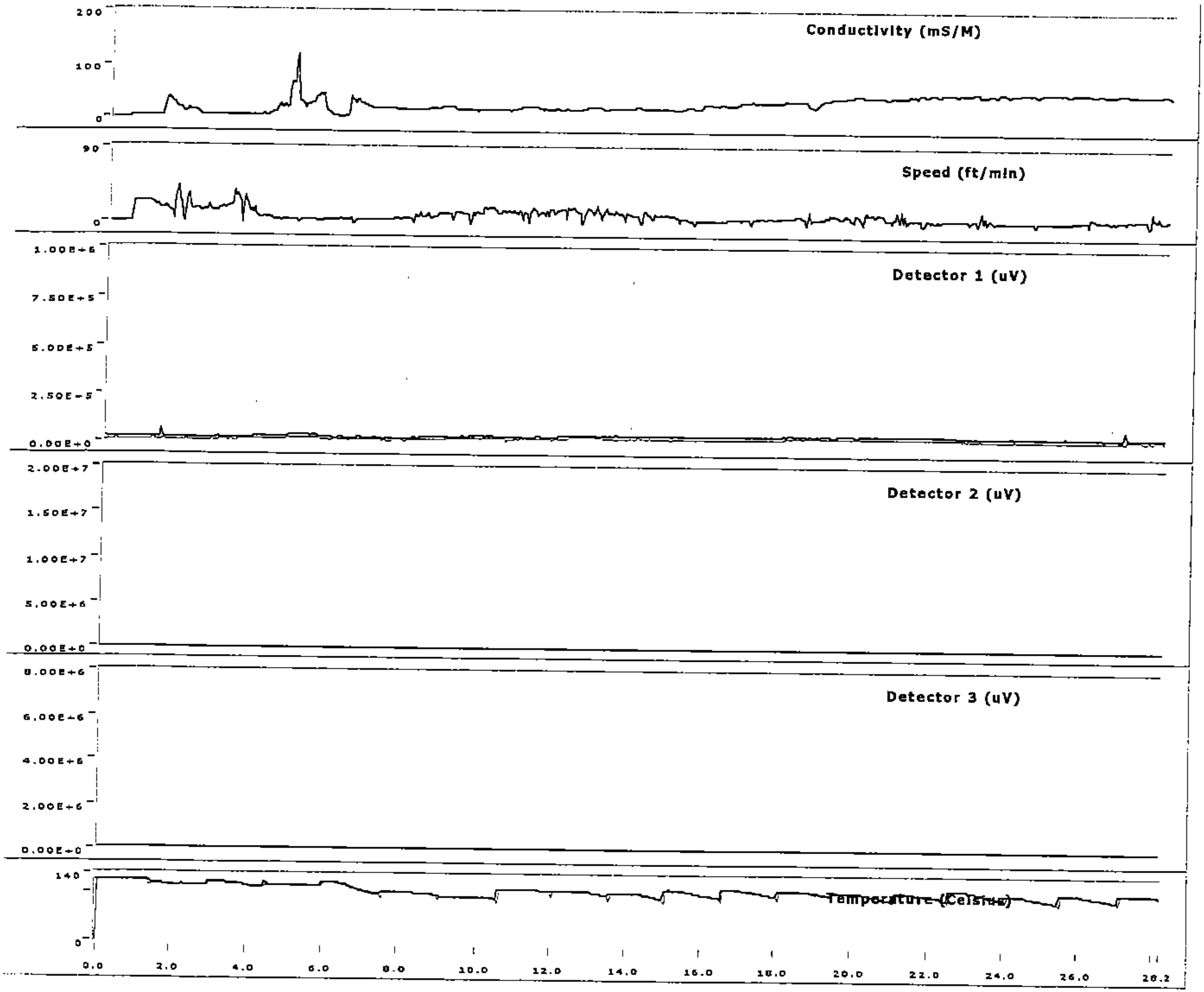

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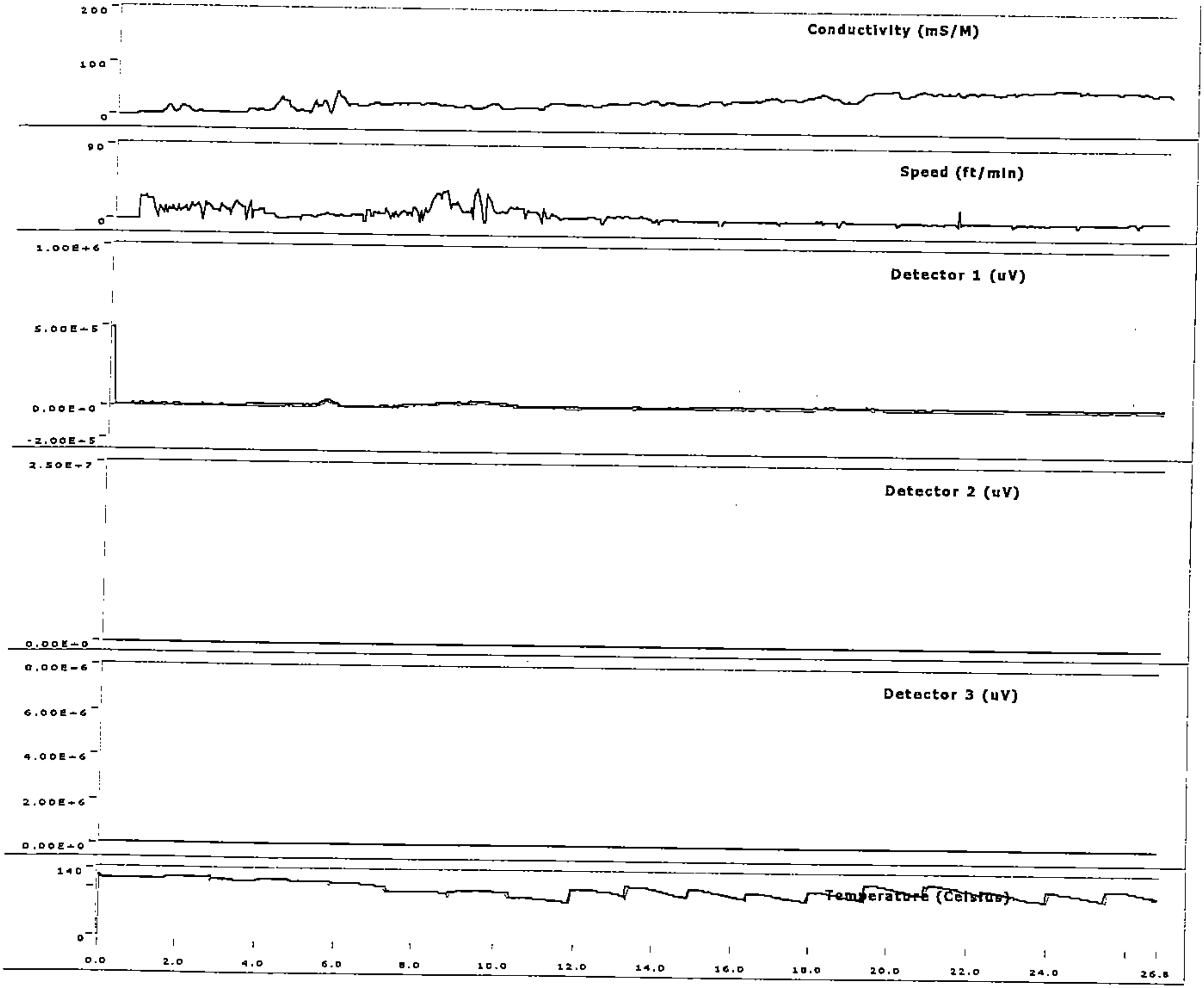

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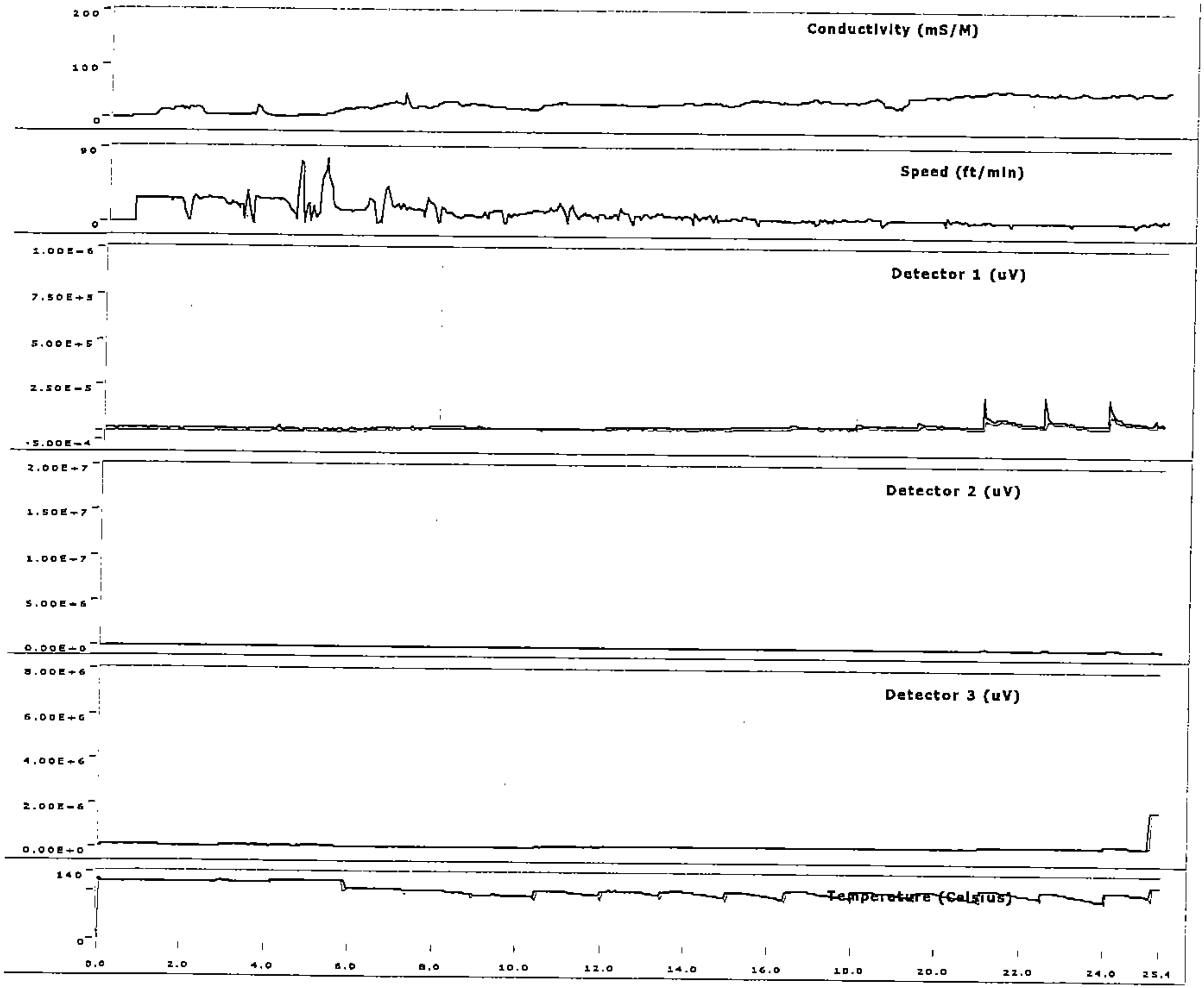

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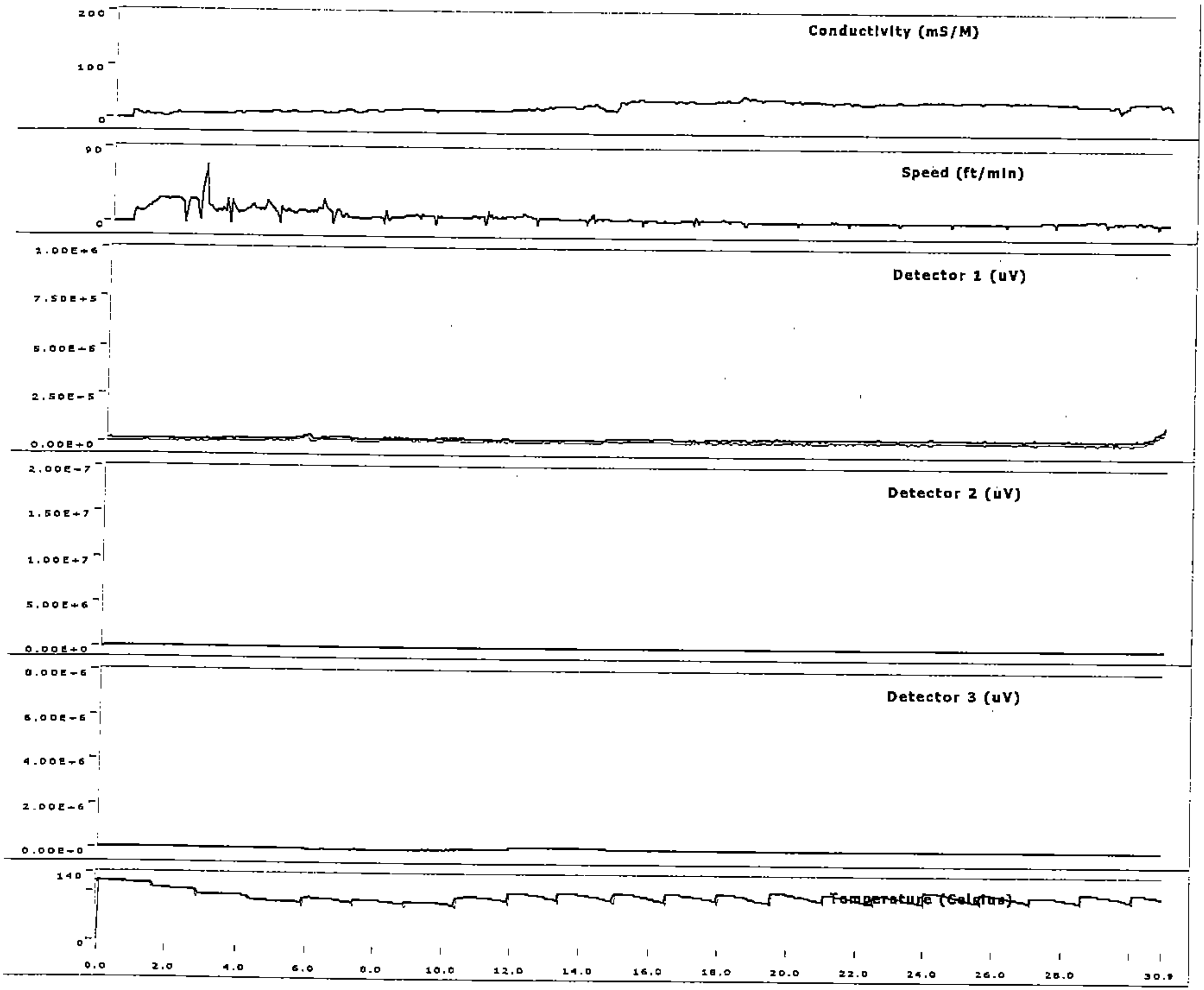

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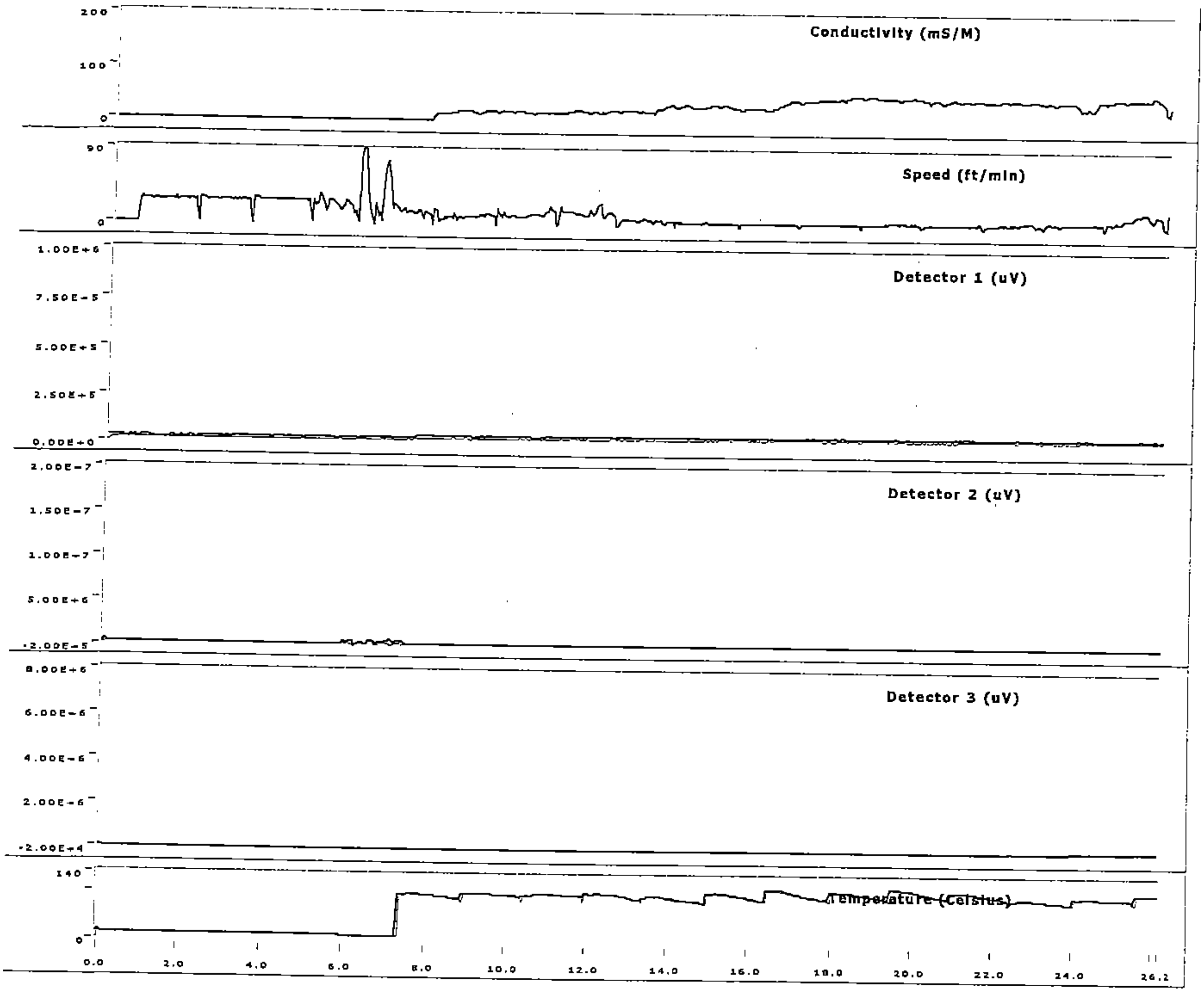

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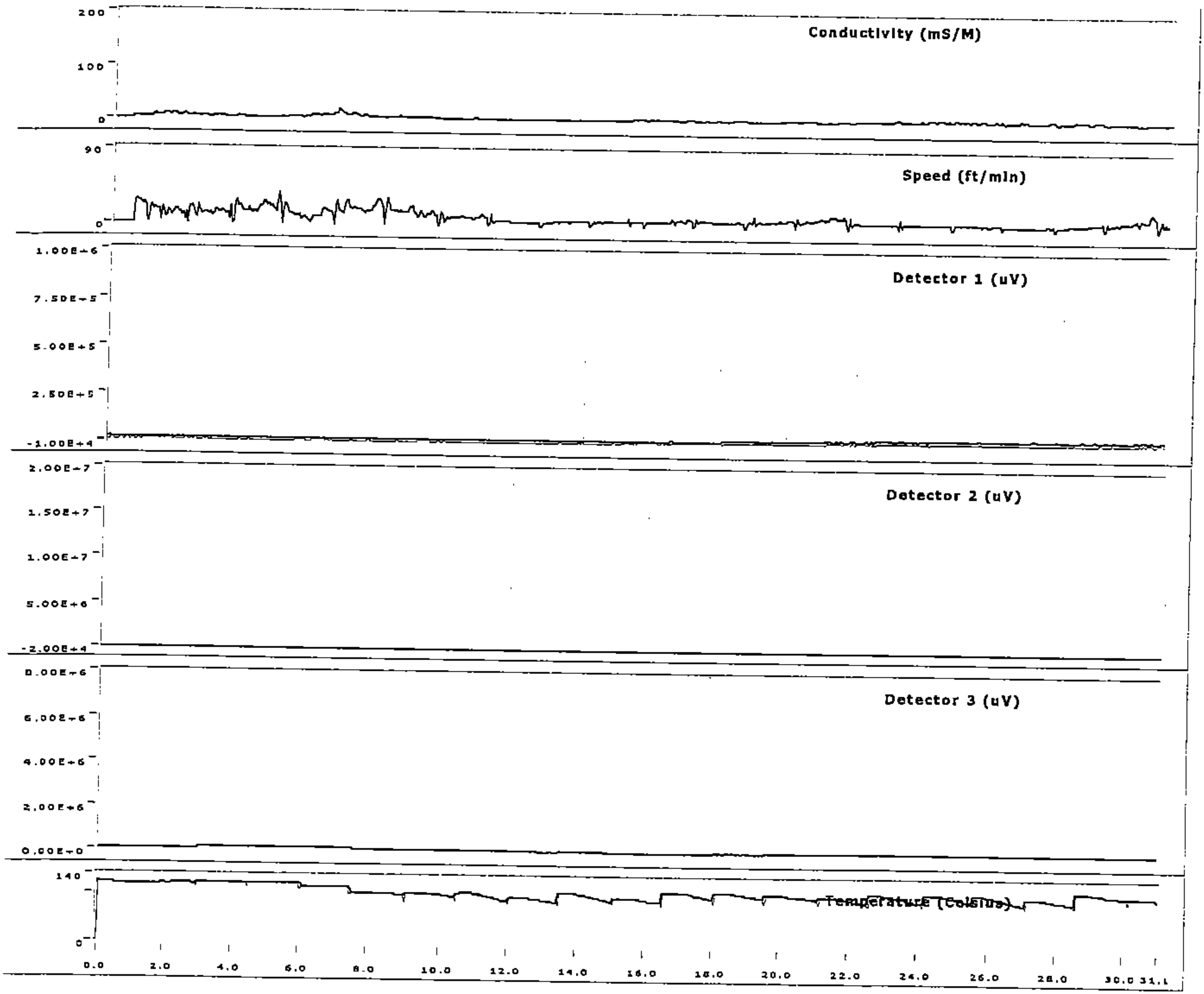

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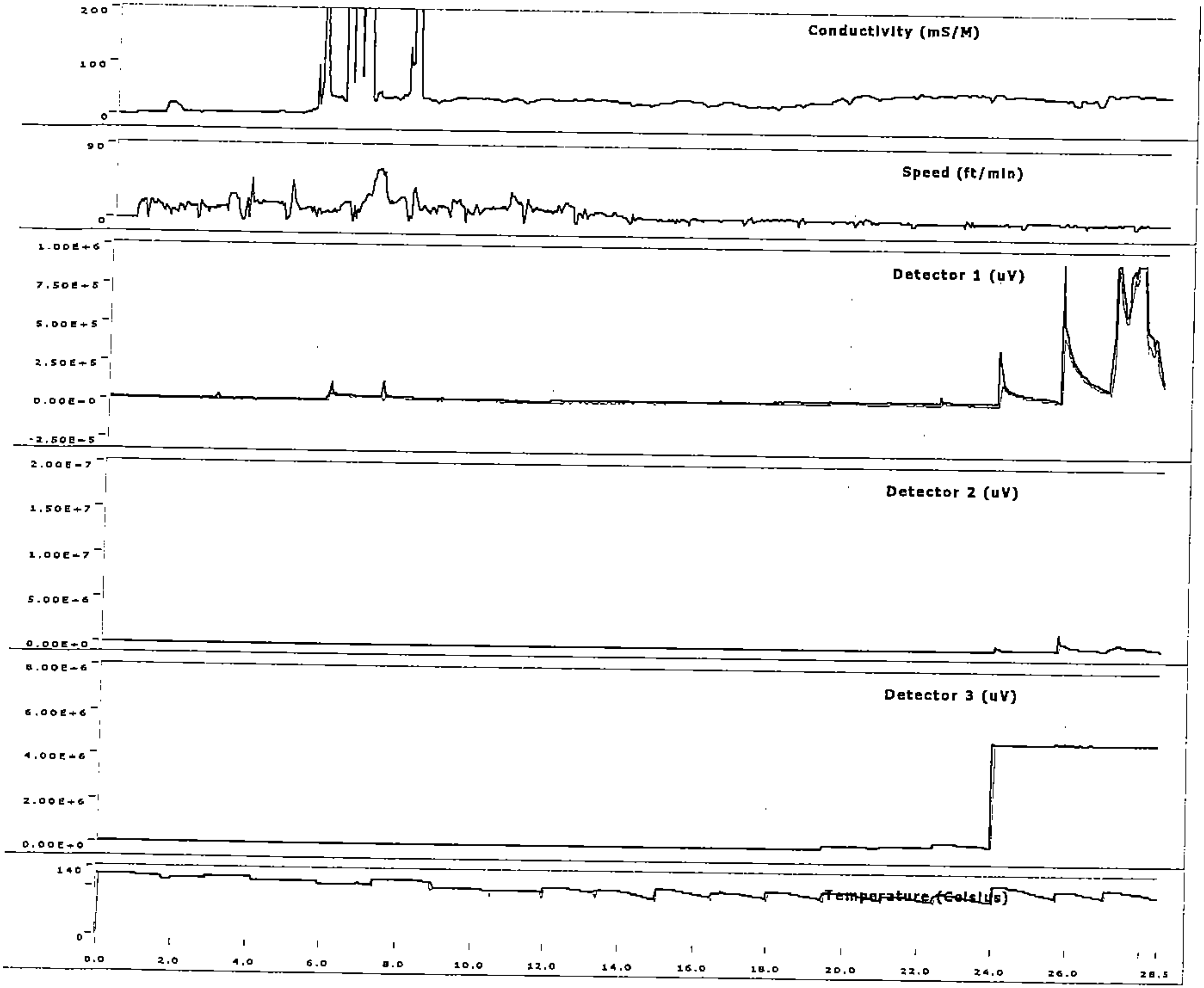

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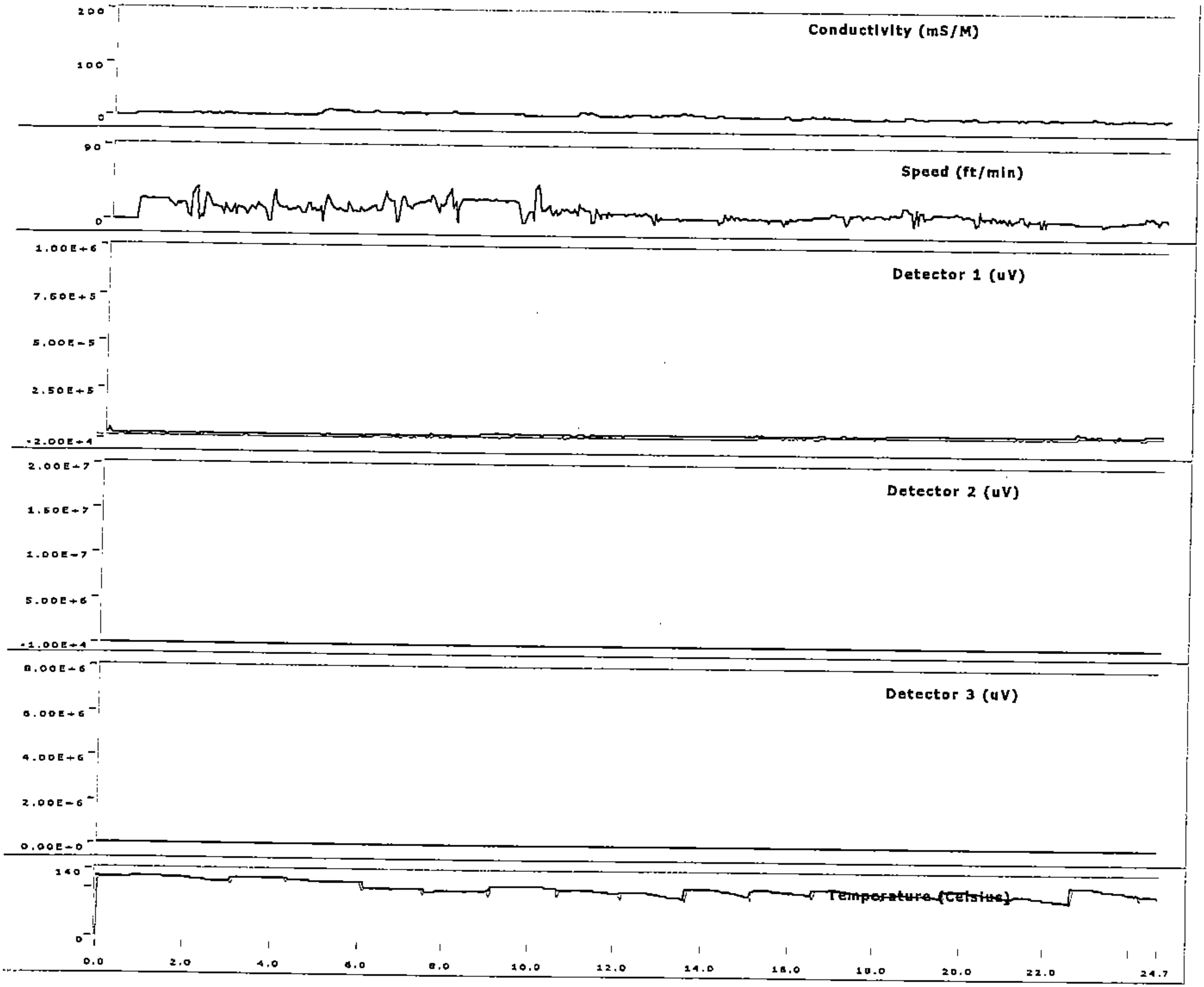

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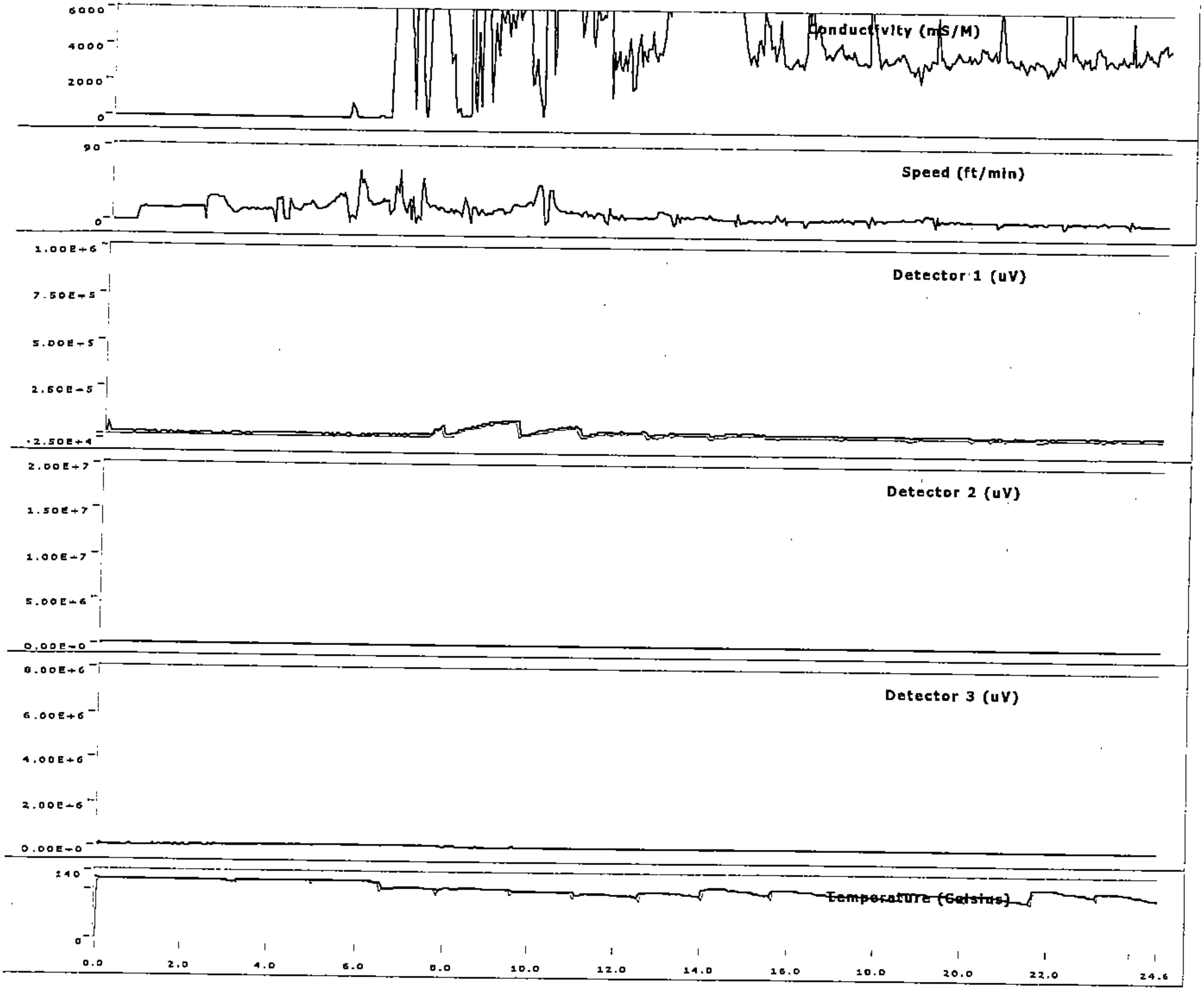

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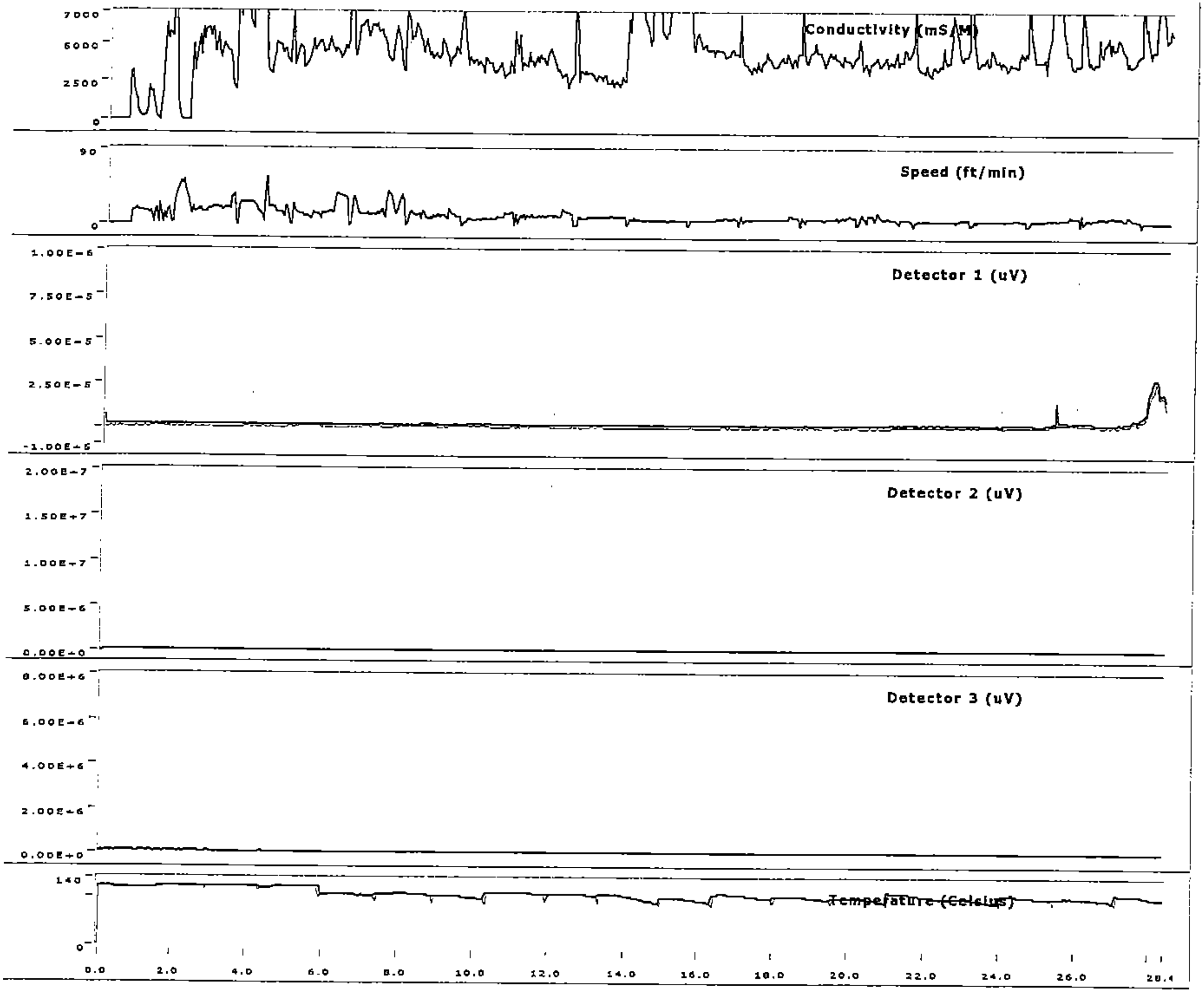

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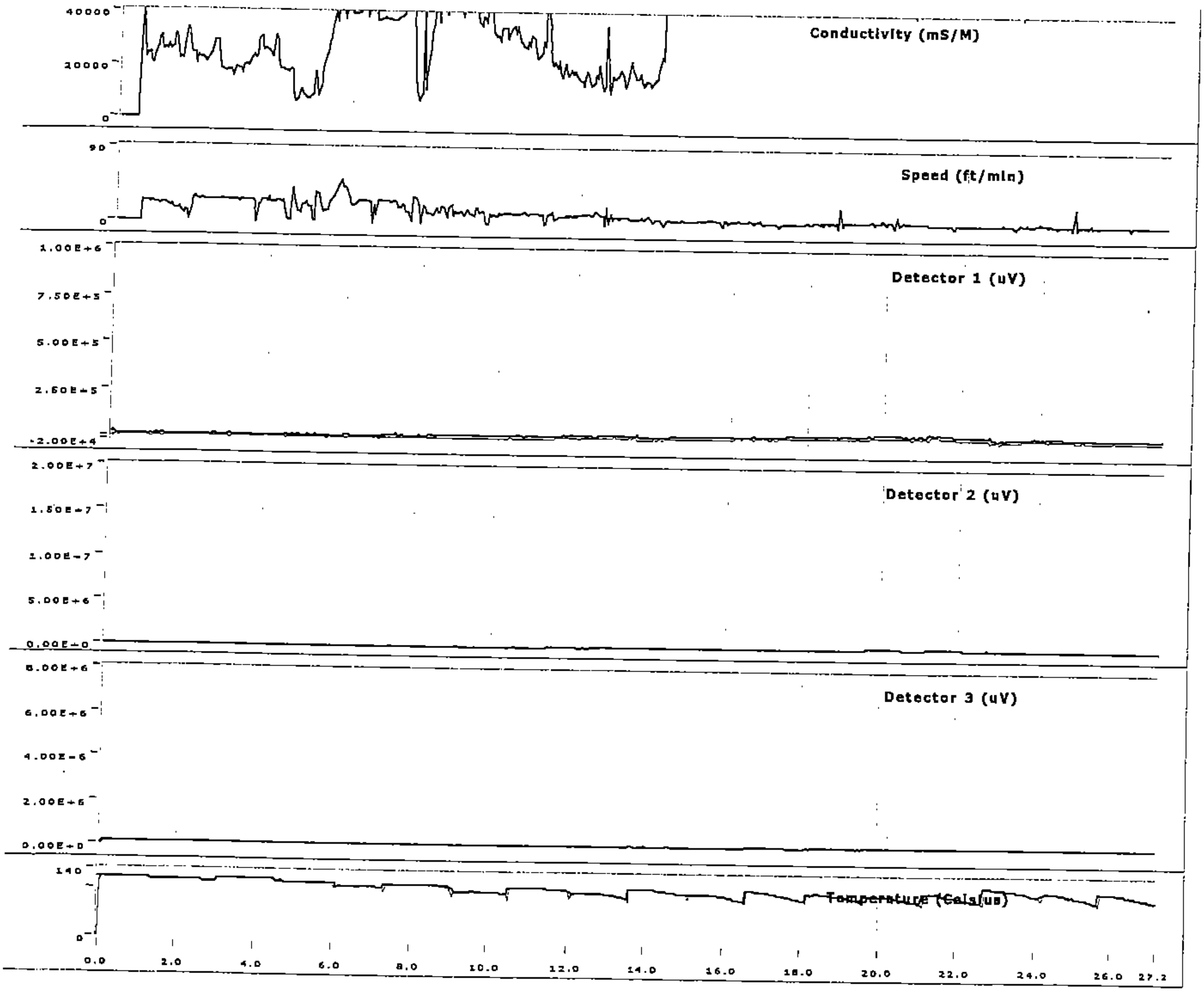

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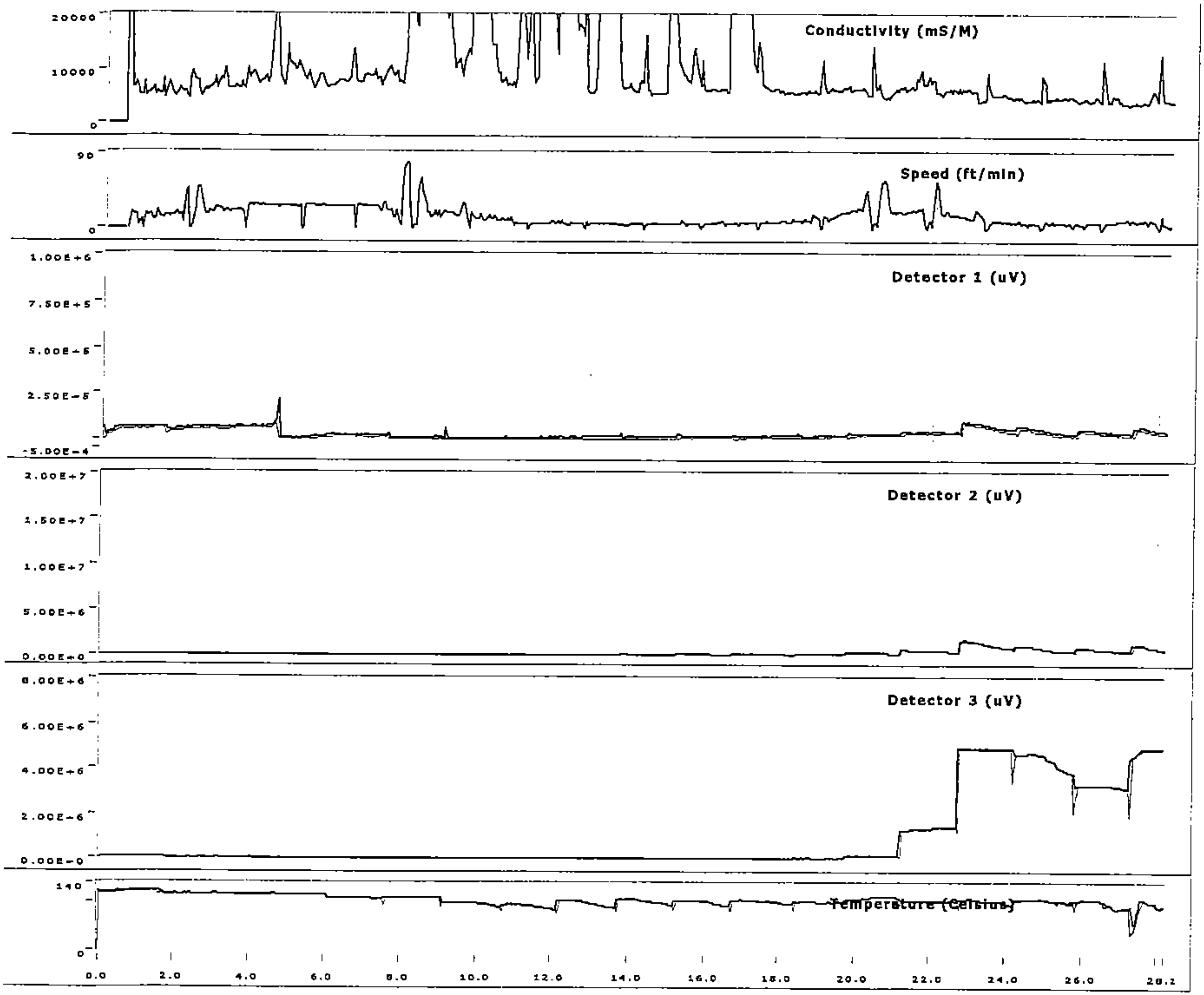

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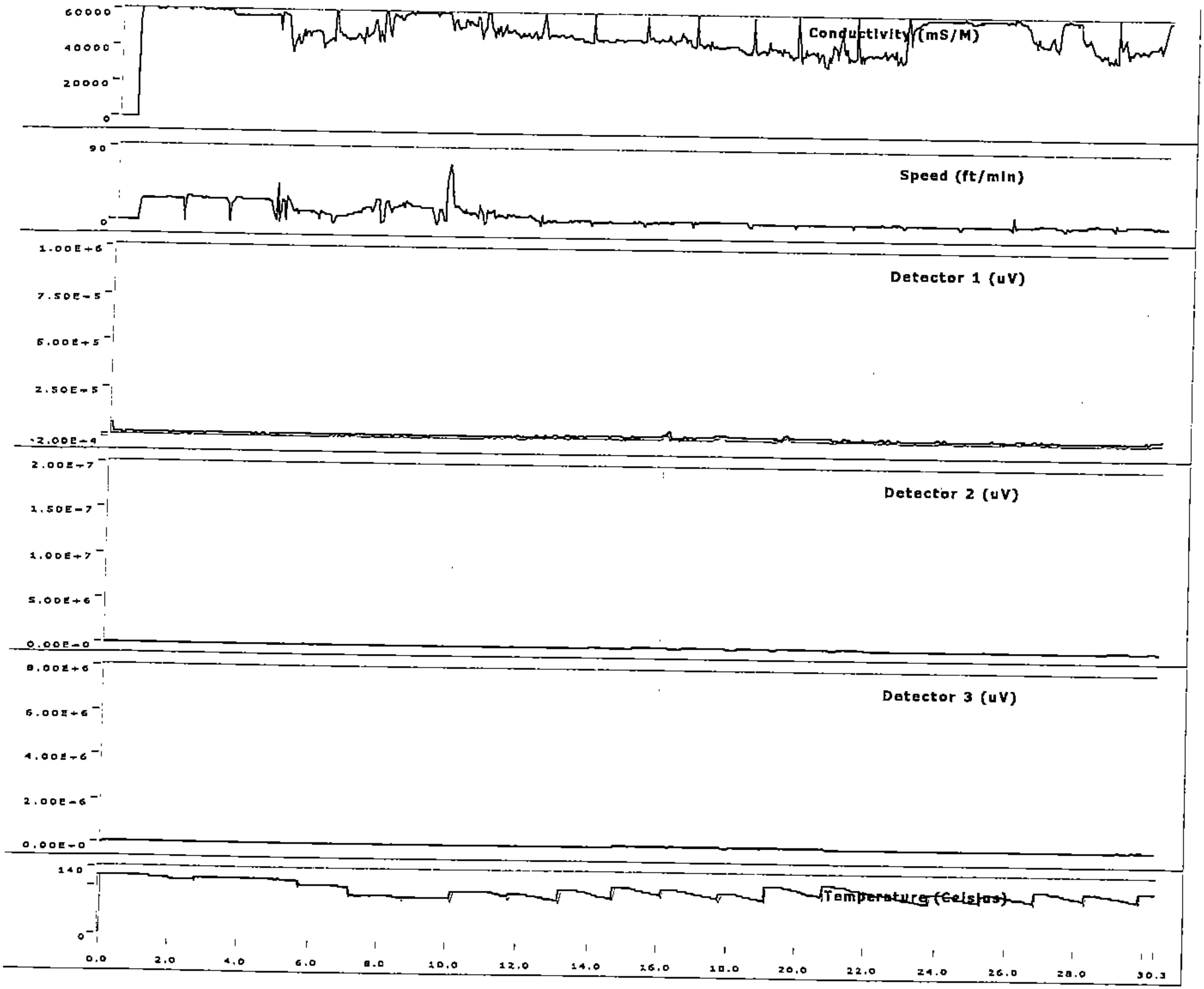

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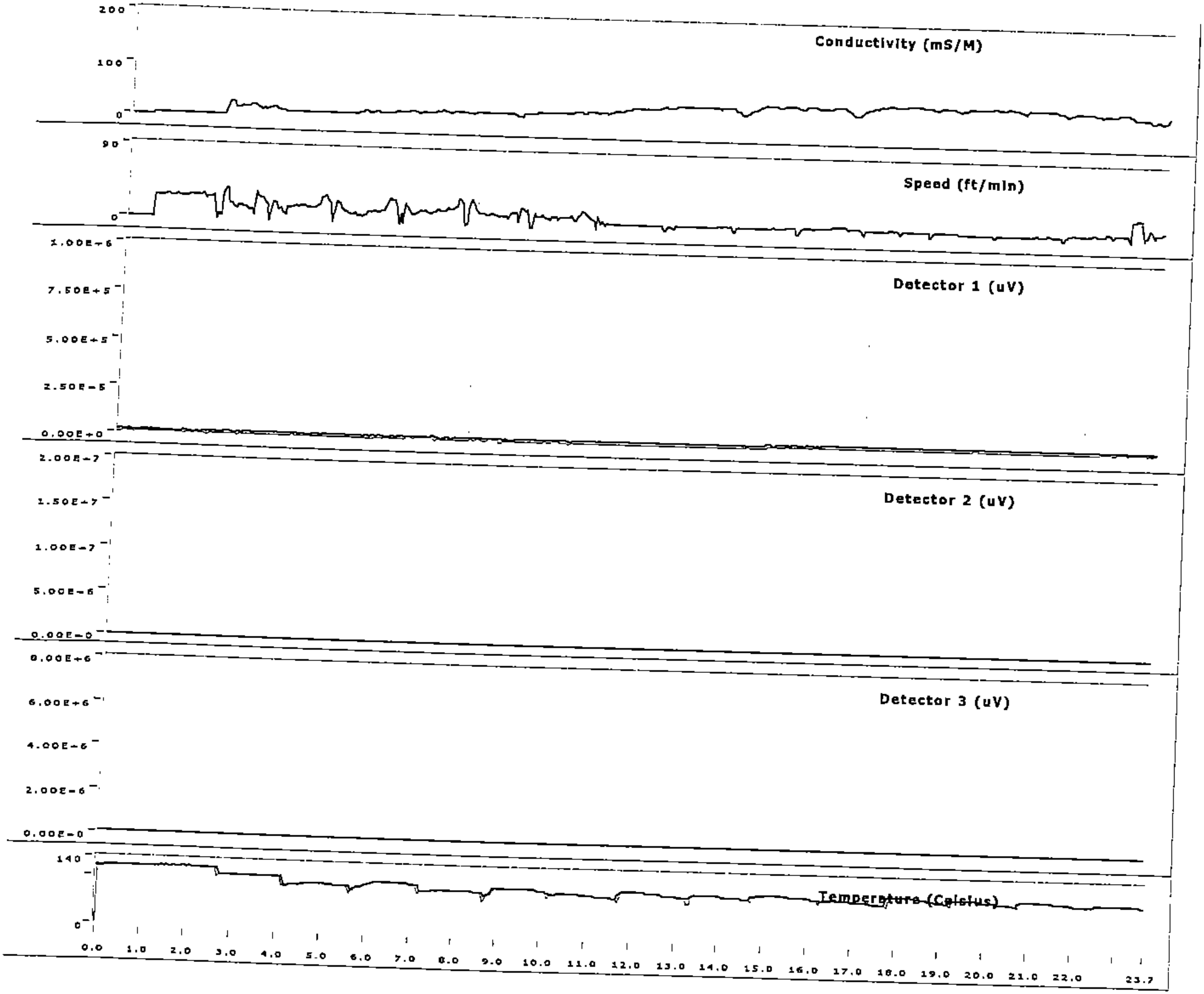

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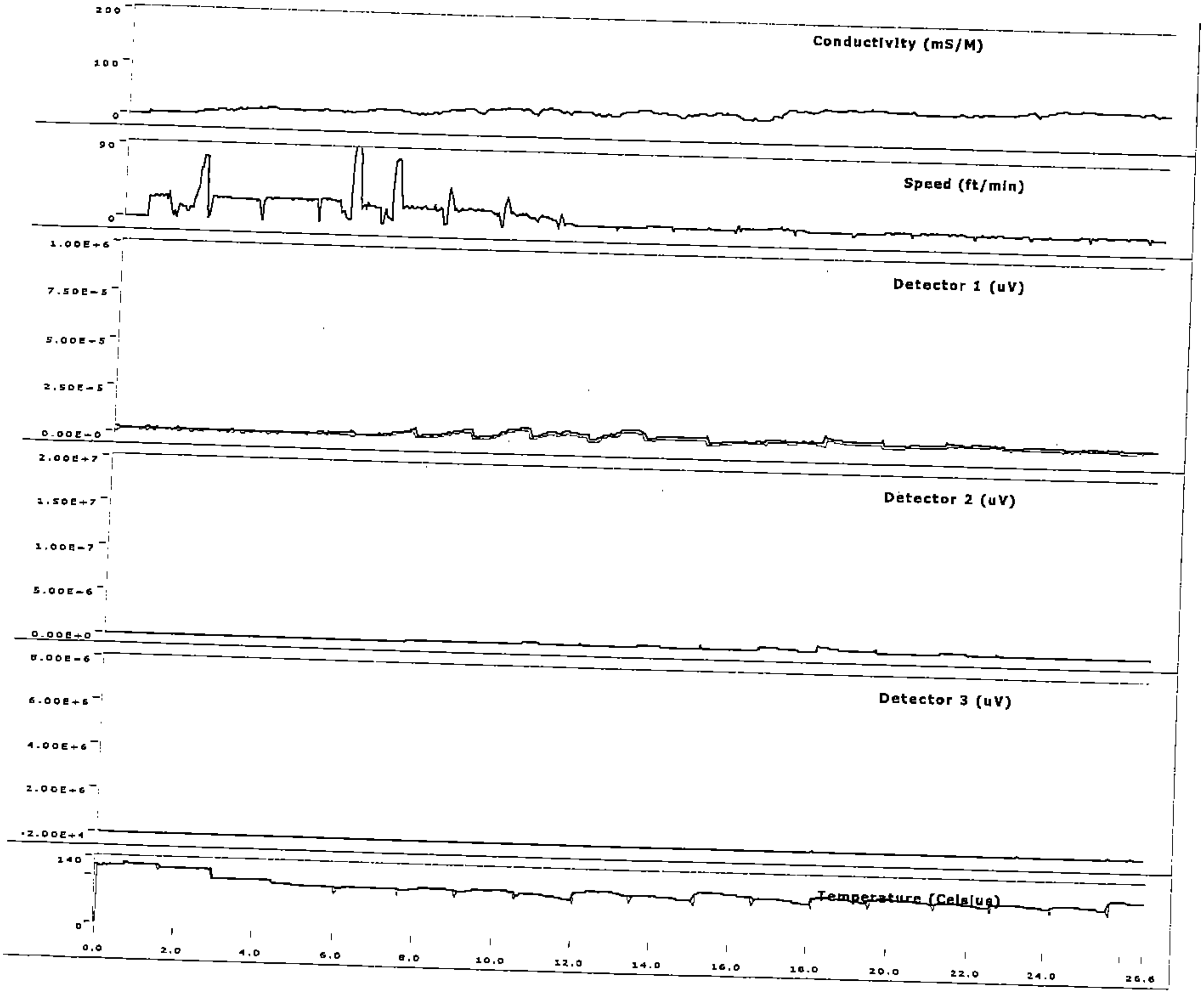

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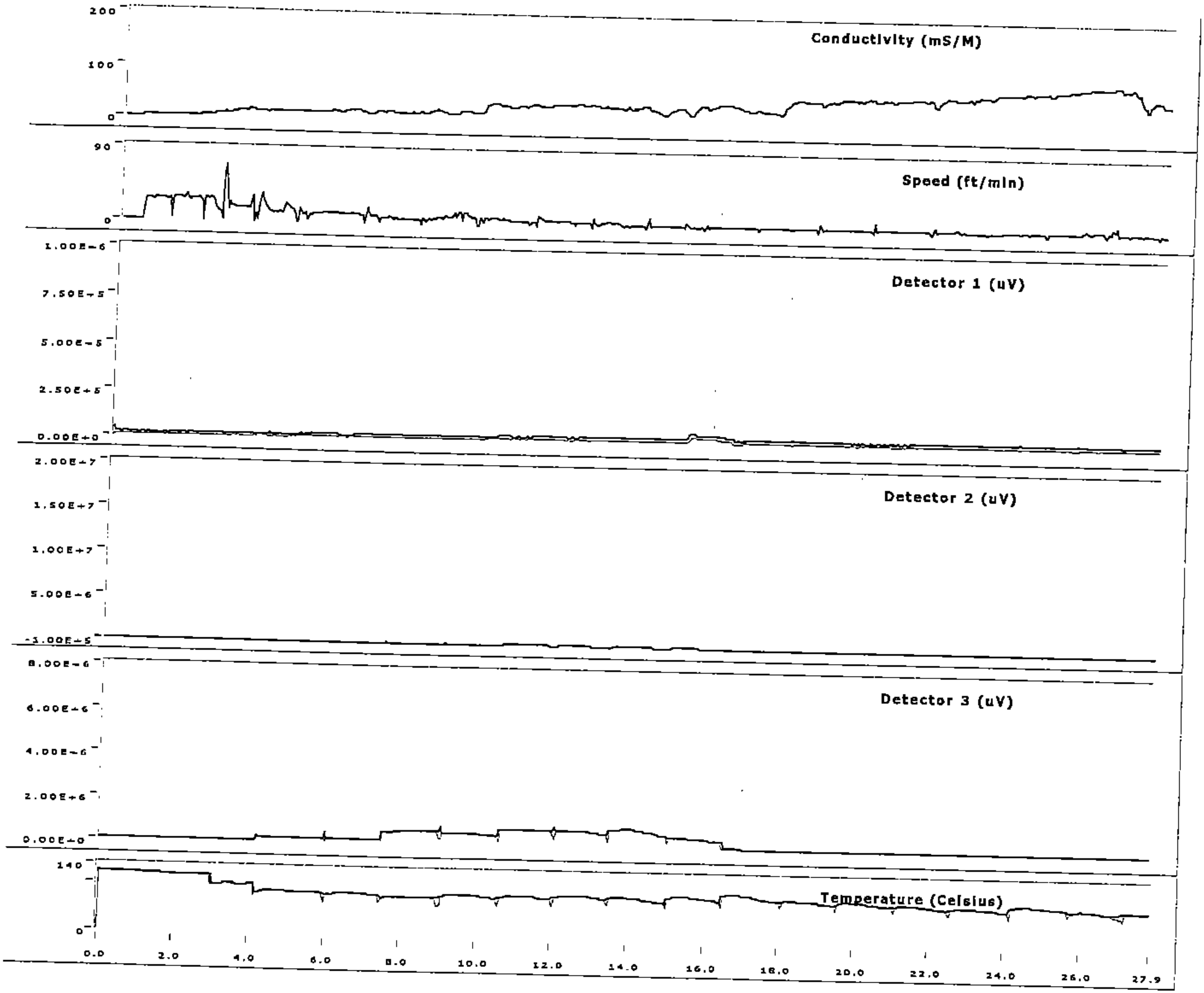

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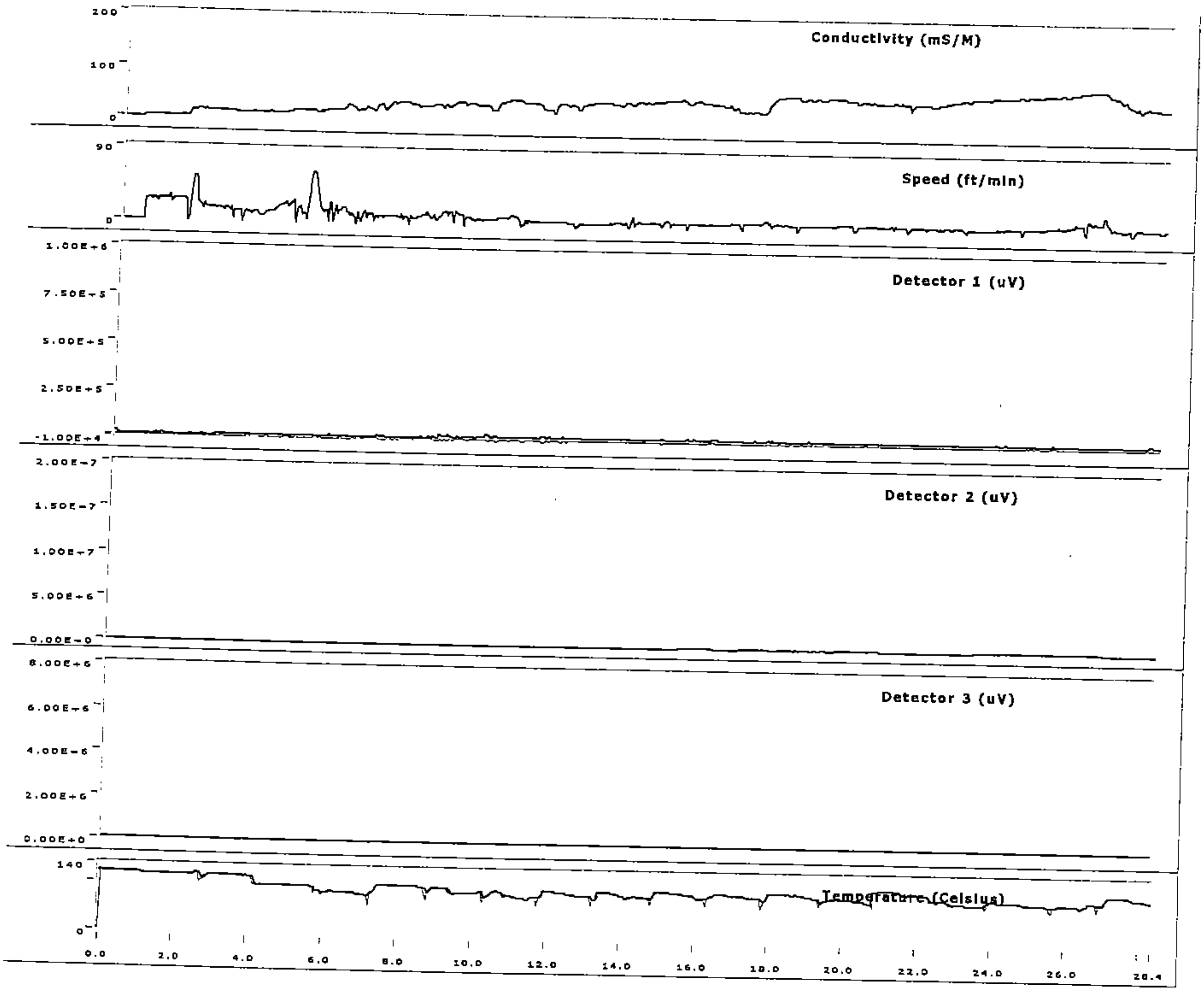

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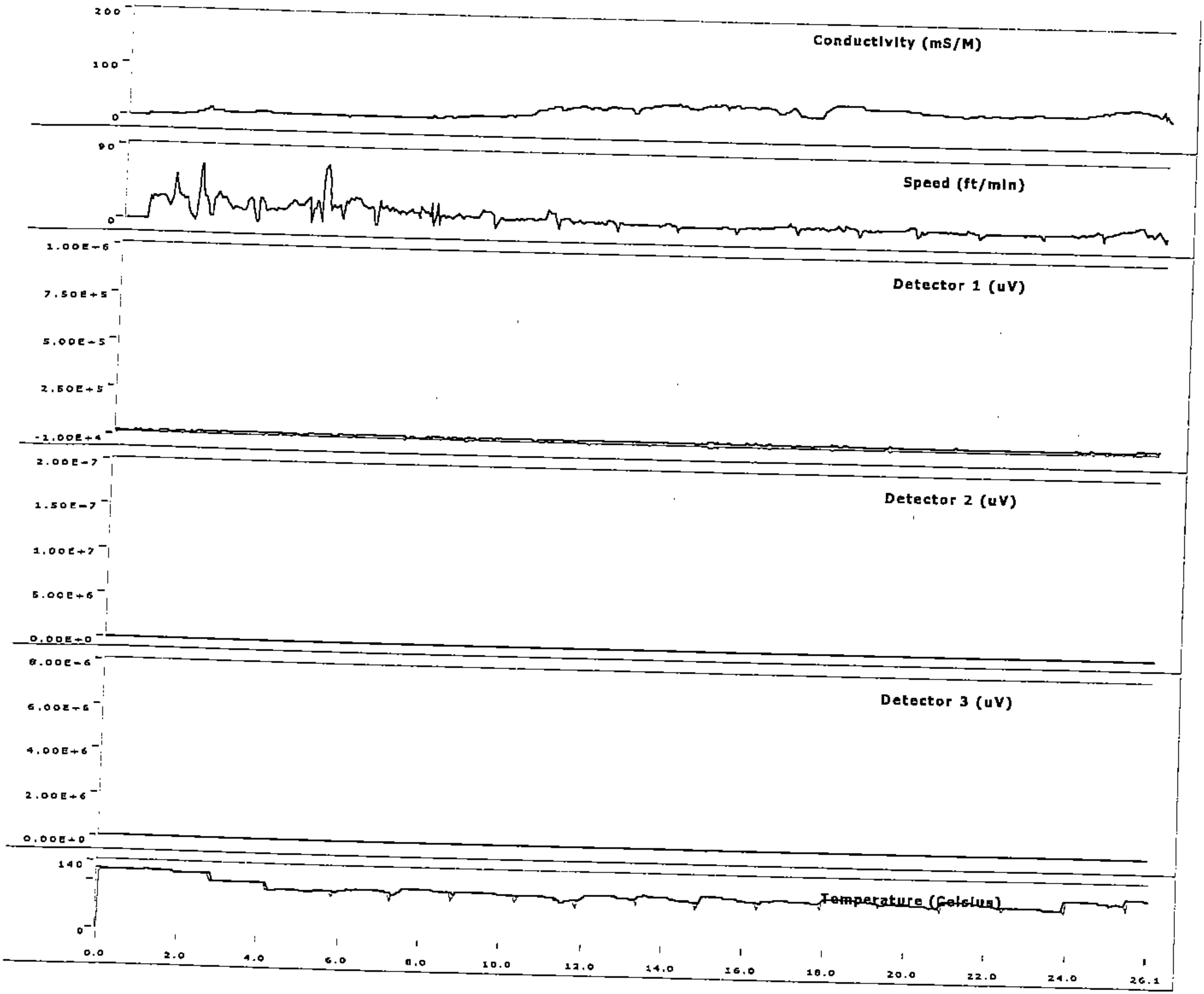

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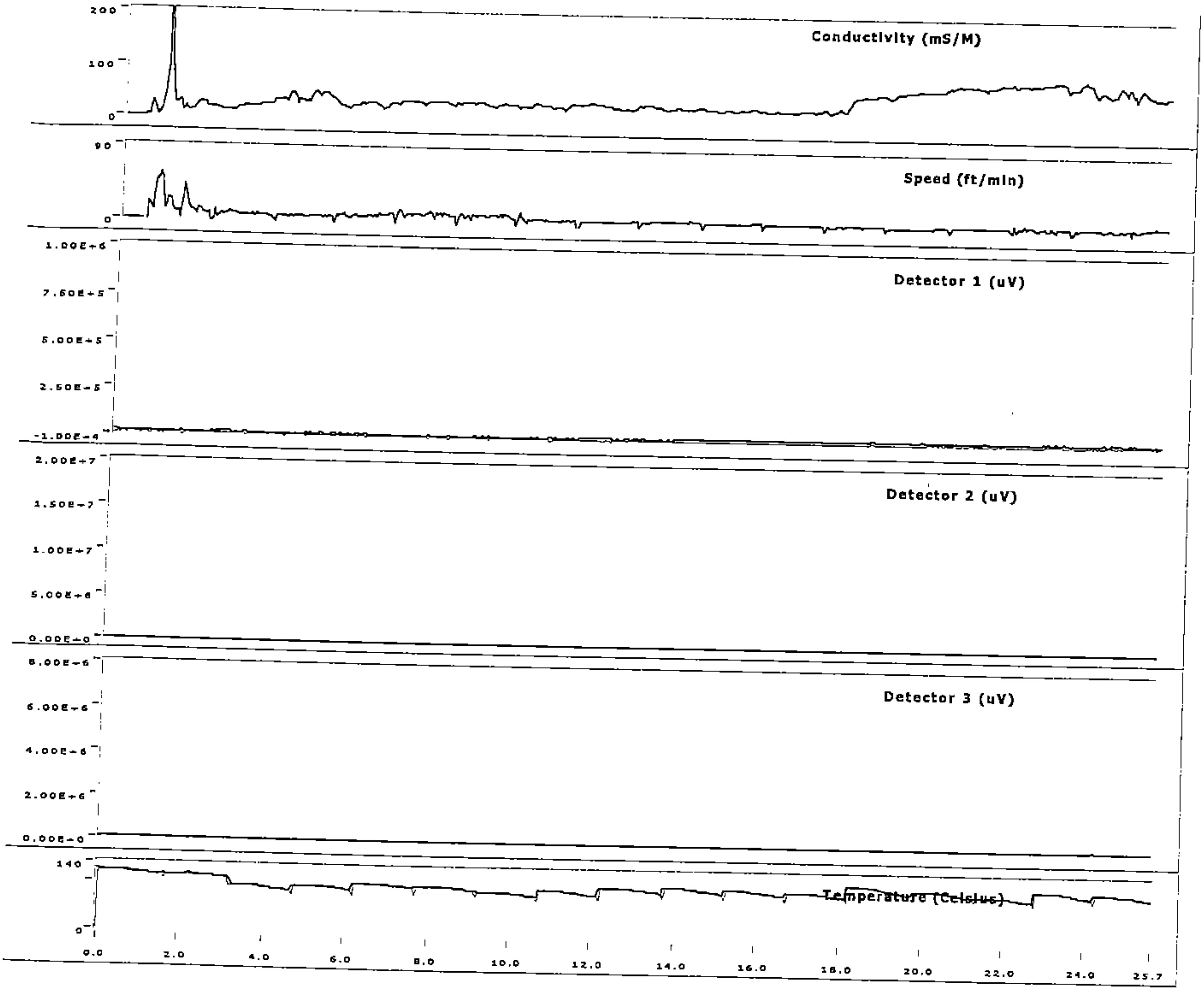

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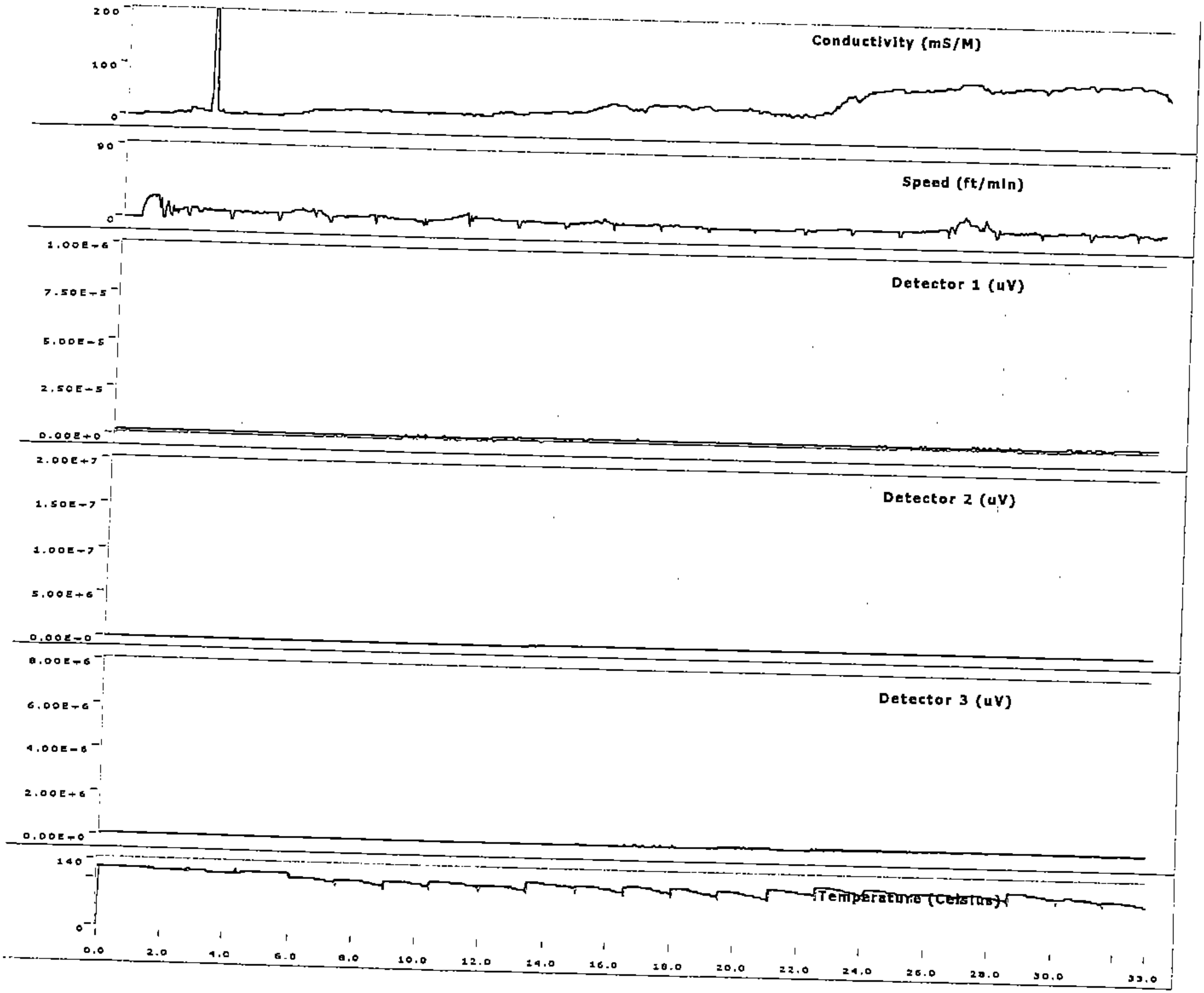

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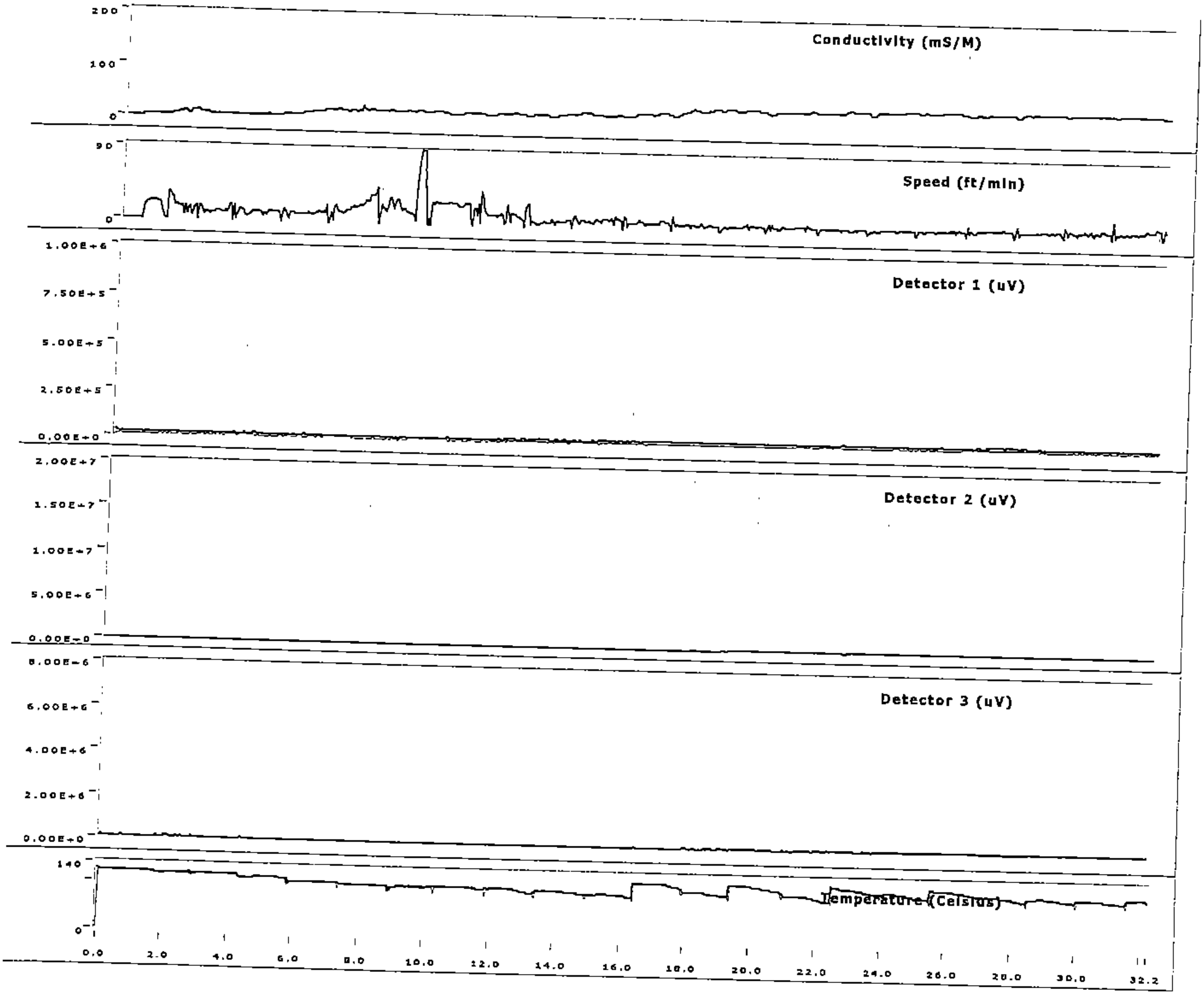

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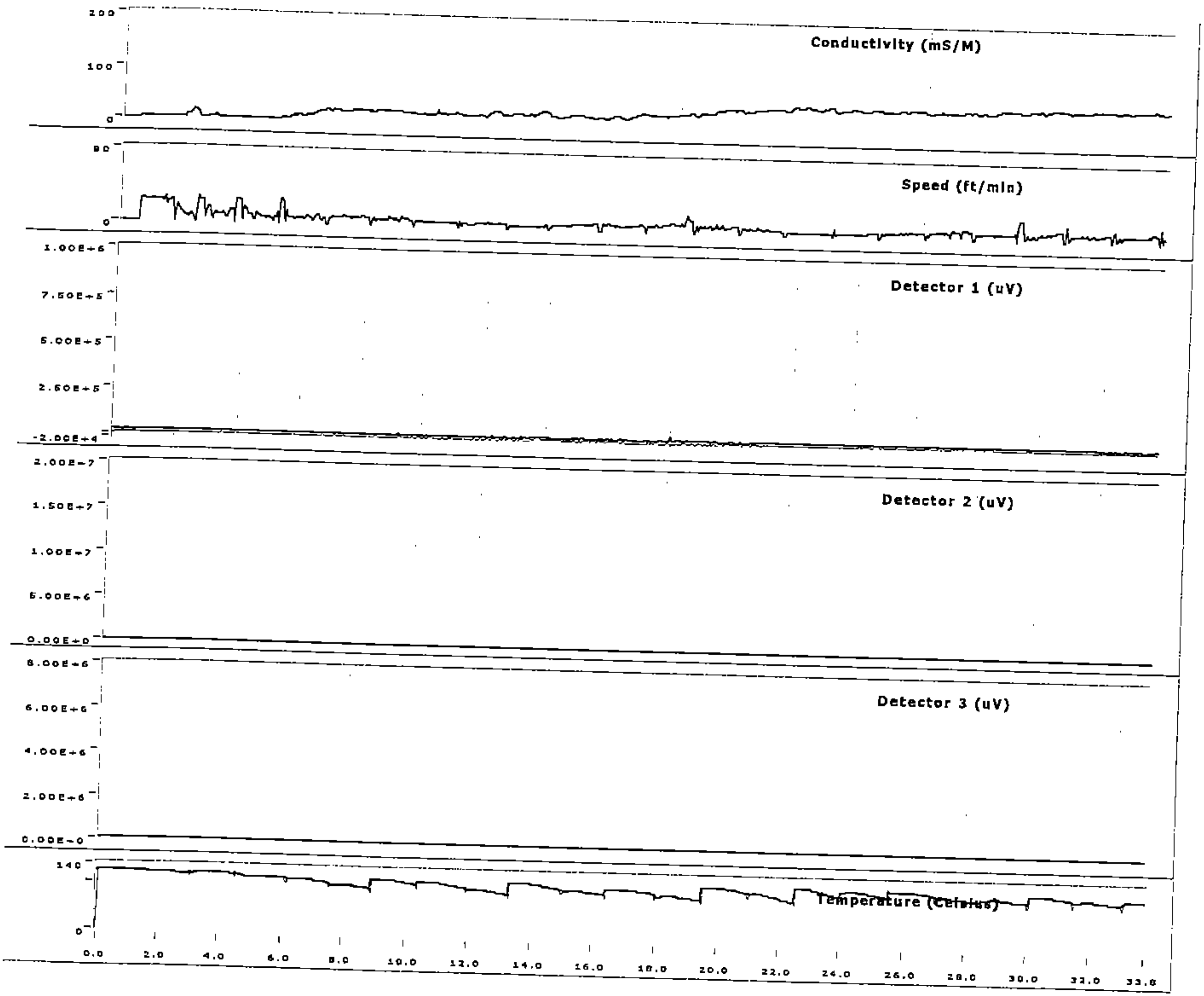

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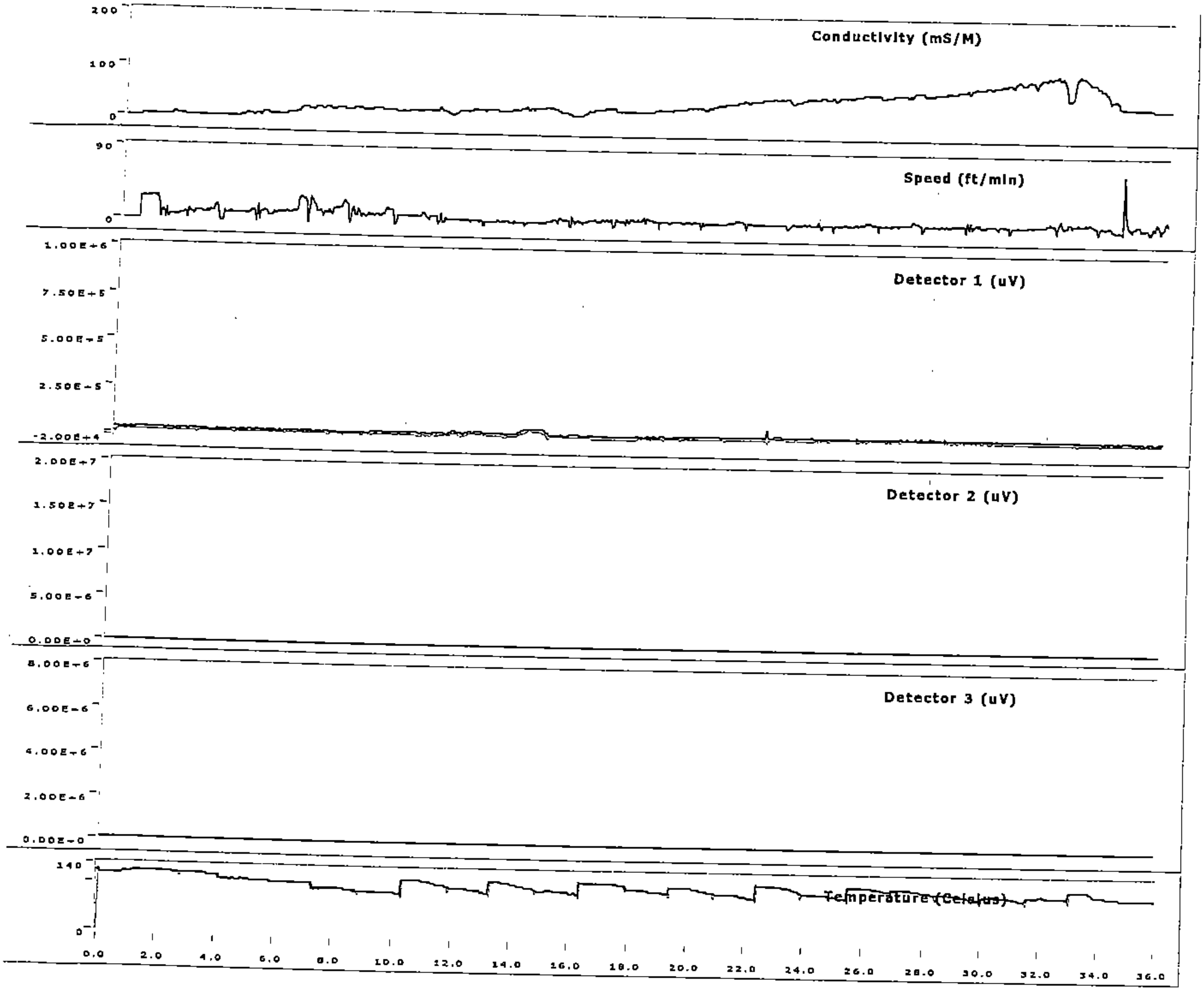

Hydrogeologic Investigation
OMC Plant 2 (Operable Unit 4), Waukegan, Illinois— WA No. 237-RICO-0528, Contract No. 68-W6-0025

PREPARED FOR:	USEPA
PREPARED BY:	CH2M HILL
DATE:	October 13, 2005

Introduction

This memorandum documents the activities associated with the hydrogeologic investigation conducted as part of the remedial investigation (RI) at the Outboard Marine Corporation Plant 2 (OMC Plant 2) in Waukegan, Illinois. The investigation activities included installation and development of monitoring wells, abandonment of monitoring wells and temporary piezometers, measurement of groundwater levels, and groundwater sampling. In situ hydraulic testing of the newly installed wells was also conducted and is described in a separate memorandum. The hydrogeologic investigation was conducted between March 15 and May 6, 2005.

This memorandum includes the following:

- Description of field activities performed including locations, methods, and deviations from site-specific plans
- Summary of sample locations, depths, field measurements, and observations
- Boring logs and well construction diagrams have been included as Attachments 1 and 2, respectively

Field Activities

The field activities conducted and their specific objectives, as discussed in the *Field Sampling Plan* (FSP) (CH2M HILL, 2005), included:

- Installation of monitoring well nests at 18 locations to fill gaps in the existing well network. The wells will be used to monitor shallow and deep groundwater flow and quality across the Plant 2 site and to monitor groundwater potentially discharging to Lake Michigan and/or Waukegan Harbor.

- Installation of five monitoring well nests within the building to monitor the potential source areas and the groundwater plume.

- Development of existing and newly installed monitoring wells prior to groundwater sampling.

- Abandonment of selected monitoring wells and piezometers based on well construction and deterioration.
- Collection of groundwater samples from new and existing monitoring well locations to verify current groundwater quality conditions.
- Measurement of groundwater levels from new and existing monitoring well locations to verify current groundwater flow directions and rates.

Monitoring Well Installation

Locations

This activity included the installation of 18 monitoring well nests (13 outside the plant and 5 within the plant) by Innovative Probing Solutions (IPS) of Mt. Vernon, Illinois. Each location consists of a well nest including a shallow zone (0 to 10 feet) and a deep zone (20 to 30 feet) well. The locations of the new and existing monitoring wells are presented in Figure 1.

A total of 10 monitoring locations outside the building were initially identified in the FSP. The proposed locations for these new wells were reexamined and modified based on the results of the Membrane Interface Probe (MIP) investigation and preliminary groundwater analytical data. The modifications to the proposed monitoring well locations are as follows:

- A monitoring well nest was proposed to examine elevated VOC concentrations measured in a deep-zone temporary piezometer in 1997 (25,019 µg/L), located in the northwest portion of site. The proposed new well location was west of the railroad on the City of Waukegan property. Based on potential access issues and because the site was a former coal gasification plant, the results of the MIPs investigation were examined to determine the need for this monitoring well location. The MIPs results did not confirm the high groundwater concentrations in this area and the well nest was relocated.
- Based on the MIPs results, a monitoring well nest (MW-513) was added south of the plant in the grassed area of the southwestern corner of the Corporate Building. The well nest was located to monitor groundwater flow and contaminant concentrations potentially migrating toward the Larsen Marine property.
- An additional monitoring well nest location (MW-517) was installed near the former HAZMAT Storage area to aid in sampling and groundwater flow direction determination in the southwest corner of the site.
- Two additional nested locations (MW-500 and MW-501) were completed as replacement monitoring wells for locations W-2A, W-2B, W-2C and W-4A, W-4B, and W-4C.

Well Installation

Prior to monitoring well installation, soil samples at each location were continuously sampled from ground surface to the top of the till, as indicated by direct-push refusal. The direct-push sampling methodology is described in the technical memorandum entitled *Soil and Sediment Investigations* (CH2M HILL, 2005). Soil samples were collected using a

Geoprobe® Macrocore sampler. The soil samples were logged using the ASTM D-2487, Unified Soil Classification System and were screened for organic vapors using a photoionization detector. In addition, soil samples from the screened intervals were collected and submitted to CT Laboratories to be analyzed for total organic carbon, grain-size, porosity, and bulk density. The soil boring logs are provided in Attachment 1.

The shallow and deep monitoring wells were installed using a 4.25-inch inside diameter (ID) hollow-stem auger method in accordance with the FSP. The monitoring well information is summarized in Table 1 and the completion diagrams are provided in Attachment 2.

The shallow monitoring wells are screened in overlying unconsolidated material and range from 7 to 9.5 feet in depth. As drilling commenced, it became apparent that construction of the shallow wells would need to be modified. With groundwater in close proximity to ground surface (on the order of 0.5 to 6 feet bgs), the ability to place the well screen across the water table and the installation of an adequate thickness of annular and surface seal could not be accomplished as planned. In some cases, the thickness of the sand filter pack above the screen and/or the bentonite seal was reduced from the minimum thickness specified in the FSP. The constructions of the following wells were adjusted:

- MW-500S, MW-501S, MW-503S, MW-507S, and MW-508S annular seals were 0.5 foot thick
- MW-502S and MW-509S annular seals were 1.0 foot thick
- MW-512S, MW-513S, MW-514S, MW-516S, and MW-517S annular seals were 1.5 feet thick

The deep monitoring wells were screened in overlying unconsolidated material above the till at depths ranging from 20 to 29.5 feet below ground surface (bgs). The deep monitoring wells were also constructed of 2-inch ID, schedule 40 polyvinyl chloride (PVC) casing and a 5-foot screened interval (0.010-inch machine slotted). The deep wells were built in accordance with the FSP, with the exception of MW-507D. The filter pack in MW-507D extends to 5 feet above the top of the screen, rather than the required 2 feet, because of subcontractor measurement error.

Monitoring Well Development

All new shallow and deep monitoring wells and existing monitoring wells that were identified for groundwater sampling were developed/redeveloped (Table 2) to remove fine-grained materials that may have settled in and around the well screen during installation, and to maximize the ability of the well to transmit representative portions of groundwater.

Well development was completed using a low-yield submersible pump connected to a 1-inch, Schedule 40 PVC pipe and discharge hose. Development was accomplished by surging the well screen with a submersible pump connected to the PVC pipe, followed by purging the suspended sediments. Water quality parameters such as pH, temperature, and specific conductance were periodically monitored during development to assess stabilization of these parameters. Well development continued until the well yielded relatively sediment-free water and/or the monitored water parameters had stabilized. A well development record was maintained by the onsite hydrogeologist to document the well development methods used, the estimated volume of water purged, and the results of the water quality parameters monitored. The final measured water quality parameters are presented in Table 3.

Water quality parameters were not collected during the development of previously existing wells. The development of these wells was continued until the well yielded relatively sediment-free water.

Water quality parameters were not recorded for monitoring wells MW-508S and MW-510S because of the low well yield. Both monitoring wells were purged dry three times during development.

Fluids generated during well development activities were contained in labeled, 55-gallon drums staged as designated in the *Investigation-Derived Waste Management Plan* (CH2M HILL, 2004) or a designated truck-mounted poly tank. Development water was subsequently transferred into bulk storage poly tanks. Equipment used during well development was decontaminated between monitoring well locations in accordance with FOP-17, *Decontamination of Drilling Rigs and Equipment*.

Monitoring Well Abandonment

During the site reconnaissance that took place prior to groundwater sampling, the wells existing on the site were inspected to determine their suitability for groundwater sampling. Fourteen select monitoring wells and temporary piezometers were abandoned based on their deteriorated condition (Table 4).

Monitoring wells W-2A, W-2B, W-2C, W4A, W4B, W-4C, and W-14-JRB were abandoned because of deterioration. Piezometers MW-T101, MW-T104, MW-T105, MW-T107, TP-1, TP-10, and TP-11 were abandoned because of their well construction and potential for contamination to the underlying aquifer. All monitoring wells and piezometers were abandoned by removing as much of the casing as possible, ensuring a depth of at least 4 feet bgs, and then backfilling the boring with bentonite slurry or bentonite chips, based on the total depth of the monitoring well to be abandoned.

Water Level Measurements

Groundwater measurements were collected from all newly constructed and existing monitoring wells having similar well construction and depth. Results of the water level measurements are found in Table 1.

Groundwater Sampling

Upon development of the wells, groundwater sampling was conducted using low-flow methods as described in the FSP and in accordance with procedures outlined in the *Ground-water Sampling Guidelines for Superfund and RCRA Project Managers* (USEPA, 2002).

Groundwater was sampled from 21 of the existing 2-inch monitoring wells (including 6 shallow (0- to 10-foot) wells, 6 intermediate (10- to 20-foot) wells, and 11 deep (20- to 30-foot) wells), and 36 newly installed monitoring wells.

A GeoPump™ peristaltic pump with 0.25-inch ID Teflon®-lined tubing was used for low-flow purging and sampling of monitoring wells. Field parameters, including depth to water, pH, specific conductance, conductivity, temperature, dissolved oxygen, and turbidity, were measured at 5-minute intervals using a YSI 6920 equipped with a flow-through cell. The flow rate was also measured at 5-minute intervals using a graduated cylinder. Groundwater samples were collected when field parameter readings had stabilized. Field parameter stabilization was determined using guidelines presented in USEPA publication, *Groundwater Sampling Guidelines for Superfund and RCRA Project Managers (2002).* A summary of the final field parameters is presented in Table 5.

Groundwater samples, including trip blanks, equipment blanks, duplicates, and matrix spike/matrix spike duplicate samples, were submitted to an analytical laboratory in USEPA's Contract Laboratory Program (CLP) to be analyzed for total and dissolved metals and cyanide, volatile organic compounds, semivolatile organic compounds, and polychlorinated biphenyls. Groundwater samples were also submitted to CT Laboratories in Baraboo, Wisconsin, to be analyzed for alkalinity, chloride, ethane, ethane, nitrate, nitrite, sulfate, sulfide, and total organic compounds.

References

ASTM Method D-5784-95.

CH2M HILL. 2004. *Field Sampling Plan, OMC Plant 2*. November.

CH2M HILL. 2004. *Investigation-Derived Waste Management Plan*. September.

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USEPA. 2002. *Groundwater Sampling Guidelines for Superfund and RCRA Project Managers.* Ground Water Forum Issue Paper by Douglas Yeskis and Bernard Zavalam. May.

TABLE 1

Well Data and Groundwater Elevation Table May 2005

OMC Plant 2

Location	Top of Casing Elevation (ft amsl)	Elevation Ground Surface (ft amsl)	Top of Screened Interval (ft bgs)	Bottom of Screened Interval (ft bgs)	Top of Screened Interval (ft amsl)	Bottom of Screened Interval (ft amsl)	Screen Midpoint Elevation (ft amsl)	Distance between Screen Midpoints	May 2005 Depth to Water (btoc)	May 2005 Total Depth (btoc)	May 2005 GW Elevation (ft amsl)	May 2005 vertical gradient*	Aquifer
MW-500D	586.19	583.65	20.50	25.50	563.15	558.15	560.65		4.02	27.12	582.17		Deep
MW-500S	586.18	583.71	1.50	6.50	582.15	577.21	579.68	19.03	4.03	9.07	582.15	0.001	Shallow
MW-501D	585.76	583.29	23.00	28.00	560.65	555.29	557.97		5.21	31.27	580.55		Deep
MW-501S	585.83	583.36	1.50	6.50	582.15	576.86	579.51	21.54	5.23	10.22	580.60	-0.002	Shallow
MW-502D	587.33	584.84	18.00	23.00	565.65	561.84	563.75		4.70	25.84	582.63		Deep
MW-502S	587.44	584.93	2.00	7.00	581.65	577.93	579.79	16.05	4.79	9.87	582.65	-0.001	Shallow
MW-503D	584.63	584.86	20.00	25.00	563.65	559.86	561.76		2.40	23.89	582.23		Deep
MW-503S	584.66	584.91	2.00	7.00	581.65	577.91	579.78	18.03	2.41	7.33	582.25	-0.001	Shallow
MW-504D	588.16	588.42	24.00	29.00	559.65	559.42	559.54		6.16	28.50	582.00		Deep
MW-504S	588.23	588.42	4.00	9.00	579.65	579.42	579.54	20.00	6.22	9.41	582.01	-0.0005	Shallow
MW-505D	587.97	588.36	22.00	27.00	561.65	561.36	561.51		5.52	25.42	582.45		Deep
MW-505S	588.13	588.36	4.00	9.00	579.65	579.36	579.51	18.00	5.68	8.78	582.45	0.000	Shallow
MW-506D	588.19	588.42	23.00	28.00	560.65	560.42	560.54		5.99	27.53	582.20		Deep
MW-506S	588.18	588.42	4.00	9.00	579.65	579.42	579.54	19.00	5.97	9.23	582.21	-0.001	Shallow
MW-507D	586.34	583.93	20.00	25.00	563.65	558.93	561.29		4.53	26.08	581.81		Deep
MW-507S	586.32	583.88	2.00	7.00	581.65	576.88	579.27	17.98	4.50	9.64	581.82	-0.001	Shallow
MW-508D	584.68	584.96	24.00	29.00	559.65	555.96	557.81		3.70	29.46	580.98		Deep
MW-508S	584.67	584.93	1.50	6.50	582.15	578.43	580.29	22.48	3.69	6.23	580.98	0.000	Shallow
MW-509D	584.19	584.41	14.50	19.50	569.15	564.91	567.03		1.99	19.38	582.20		Deep
MW-509S	584.22	584.42	2.00	7.00	581.65	577.42	579.54	12.51	1.21	6.46	583.01	-0.065	Shallow
MW-510D	588.07	588.33	22.00	27.00	561.65	561.33	561.49		5.95	27.28	582.12		Deep
MW-510S	588.05	588.33	4.00	9.00	579.65	579.33	579.49	18.00	5.97	9.23	582.08	0.002	Shallow
MW-511D	588.22	588.41	23.00	28.00	560.65	560.41	560.53		6.51	28.51	581.71		Deep
MW-511S	588.15	588.41	4.00	9.00	579.65	579.41	579.53	19.00	6.46	9.27	581.69	0.001	Shallow
MW-512D	584.60	584.86	20.00	25.00	563.65	559.86	561.76		3.09	25.53	581.51		Deep
MW-512S	584.56	584.83	2.50	7.50	581.15	577.33	579.24	17.49	3.06	7.34	581.50	0.001	Shallow
MW-513D	585.29	585.54	20.50	25.00	563.15	560.54	561.85		3.65	23.31	581.64		Deep
MW-513S	585.23	585.44	2.50	7.50	581.15	577.94	579.55	17.70	3.60	7.21	581.63	0.001	Shallow
MW-514D	584.70	584.92	20.00	25.00	563.65	559.92	561.79		3.45	24.90	581.25		Deep
MW-514S	584.70	584.70	2.50	7.50	581.15	577.20	579.18	17.39	3.45	6.93	581.25	0.000	Shallow
MW-515D	583.90	583.88	21.00	26.00	562.65	557.88	560.27		2.34	26.23	581.56		Deep
MW-515S	583.71	583.97	3.00	8.00	580.65	575.97	578.31	18.05	2.47	7.90	581.24	0.018	Shallow
MW-516D	583.78	584.04	20.00	25.00	563.65	559.04	561.35		3.77	25.41	580.01		Deep
MW-516S	583.80	584.08	3.00	8.00	580.65	576.08	578.37	17.02	3.75	8.23	580.05	-0.002	Shallow
MW-517D	586.64	584.19	15.00	20.00	568.65	564.19	566.42		4.21	22.53	582.43		Deep
MW-517S	586.64	584.18	2.50	7.50	581.15	576.68	578.92	12.49	4.26	9.75	582.38	0.004	Shallow

Notes:

Survey coordinates are NAD 1983 State Plane Illinois East FIPS 1201 Feet

ft amsl = feet above mean sea level

ft btoc = feet below top of casing

*Negative value for vertical gradient denotes downward direction

TABLE 2
Monitoring Well Construction Table
OMC Plant 2

Well ID	Well diameter	Surface Completion	Date Installed	Total Depth (ft bgs)	Total Depth (ft btoc)	Screened Interval (ft bgs)	Filter Pack (ft bgs)	Annular Seal (ft bgs)	Bentonite/ Bentonite Slurry (ft bgs)	Initial Water Level (ft btoc)	Soil Boring Reference ID	Screened Zone Material	Surface Completion
Existing Monitoring Wells													
W-3	2" S.S.	Stick-up	NA	NA	24.20	NA	NA	NA	NA	NA	NA	NA	
W-4	2" S.S.	Flush Mount	NA	NA	23.64	NA	NA	NA	NA	NA	NA	NA	
W-5	2" S.S.	Stick-up	NA	NA	35.21	NA	NA	NA	NA	NA	NA	NA	
W-6	2" S.S.	Stick-up	NA	NA	32.10	NA	NA	NA	NA	NA	NA	NA	
W-7	2" S.S.	Stick-up	NA	NA	30.84	NA	NA	NA	NA	NA	NA	NA	
W-8	2" S.S.	Stick-up	NA	NA	34.23	NA	NA	NA	NA	NA	NA	NA	
W-9	2" S.S.	Stick-up	NA	NA	27.37	NA	NA	NA	NA	NA	NA	NA	
W-10	2" S.S.	Stick-up	NA	NA	25.05	NA	NA	NA	NA	NA	NA	NA	
W-11	2" S.S.	Stick-up	NA	NA	21.72	NA	NA	NA	NA	NA	NA	NA	
W-12	2" S.S.	Stick-up	NA	NA	29.10	NA	NA	NA	NA	NA	NA	NA	
W-13	2" S.S.	Stick-up	NA	NA	12.48	NA	NA	NA	NA	NA	NA	NA	
MW-100	2" SCH 40 PVC	Flush Mount	NA	NA	12.39	NA	NA	NA	NA	NA	NA	NA	X
MW-101	2" SCH 40 PVC	Flush Mount	NA	NA	12.47	NA	NA	NA	NA	NA	NA	NA	X
MW-102	2" SCH 40 PVC	Flush Mount	NA	NA	12.47	NA	NA	NA	NA	NA	NA	NA	X
MW-3S	2" SCH 40 PVC	Stick-up	NA	NA	14.89	NA	NA	NA	NA	NA	NA	NA	X
MW-3D	2" SCH 40 PVC	Stick-up	NA	NA	30.81	NA	NA	NA	NA	NA	NA	NA	X
MW-11S	2" SCH 40 PVC	Stick-up	NA	NA	14.22	NA	NA	NA	NA	NA	NA	NA	X
MW-11D	2" SCH 40 PVC	Stick-up	NA	NA	30.71	NA	NA	NA	NA	NA	NA	NA	X
MW-14S	2" SCH 40 PVC	Flush Mount	NA	NA	11.33	NA	NA	NA	NA	NA	NA	NA	X
MW-14D	2" SCH 40 PVC	Flush Mount	NA	NA	29.78	NA	NA	NA	NA	NA	NA	NA	X
MW-15S	2" SCH 40 PVC	Flush Mount	NA	NA	11.84	NA	NA	NA	NA	NA	NA	NA	X
MW-15D	2" SCH 40 PVC	Flush Mount	NA	NA	28.62	NA	NA	NA	NA	NA	NA	NA	X
Chemical Storage Area													
MW-509S	2" SCH 40 PVC	Flush Mount	3/22/2005	7.5	6.46	2.0–7.0	1.5–7.5	0.5–1.5	0.5–1.5	0.90	SO-065	sand	X
MW-509D	2" SCH 40 PVC	Flush Mount	3/22/2005	20.0	19.38	14.5–19.5	12.5–20.0	10.5–12.5	1.0–12.5	0.89	SO-065	sand	X
MW-517S	2" SCH 40 PVC	Stick-up	4/1/2005	8.0	9.75	2.5–7.5	2.0–8.0	0.5–2.0	0.5–2.0	4.09	SO-078	sand, sand and gravel, sand	X
MW-517D	2" SCH 40 PVC	Stick-up	4/1/2005	20.5	22.53	15.0–20.0	13.0–20.5	11.0–13.0	1.0–13.0	4.07	SO-078	sand	X
Northwest Portion of Site													
No monitoring wells installed due to existing monitoring well coverage and lack of viable location.													
Outside of Chip Dock Area													
MW-502S	2" SCH 40 PVC	Stick-up	3/17/2005	7.5	9.87	2.0–7.0	1.5–7.5	0.5–1.5	0.5–1.5	4.61	SO-063	silty sand	X
MW-502D	2" SCH 40 PVC	Stick-up	3/16/2005	23.5	25.84	18.0–23.0	16.0–23.5	14.0–16.0	2.0–16.0	4.50	SO-063	silty sand	X
Outside of Chip Room													
MW-503S	2" SCH 40 PVC	Flush Mount	3/16/2005	7.5	7.33	2.0–7.0	1.5–7.5	1.0–1.5	1.0–1.5	2.25	SO-062	sand and gravel	X
MW-503D	2" SCH 40 PVC	Flush Mount	3/16/2005	25.5	23.89	20.0–25.0	18.0–25.5	16.0–18.0	2.0–18.0	2.20	SO-062	silty sand	X
Parking Lot between Old Die Cast Area and New Die Cast Area													
MW-507S	2" SCH 40 PVC	Stick-up	3/15/2005	7.5	9.64	2.0–7.0	1.5–7.5	1.0–1.5	1.0–1.5	4.32	SO-061	sand and gravel	X
MW-507D	2" SCH 40 PVC	Stick-up	3/15/2005	25.5	26.08	20.0–25.0	15.0–25.5	13.0–15.0	1.0–15.0	4.38	SO-061	silty sand	X
Near Corporate Offices													
MW-513S	2" SCH 40 PVC	Flush Mount	3/30/2005	8.0	7.21	2.5–7.5	2.0–8.0	0.5–2.0	0.5–2.0	3.49	SO-075	silty clayey sand, sand, sand and gravel, sand	X
MW-513D	2" SCH 40 PVC	Flush Mount	3/30/2005	25.5	23.31	20.0–25.0	18.0–25.5	16.0–18.0	1.0–18.0	3.51	SO-075	silty sand, sandy gravel, silty sand, and silty sand clay and gravel	X
MW-514S	2" SCH 40 PVC	Flush Mount	3/30/2005	8.0	6.93	2.5–7.5	2.0–8.0	0.5–2.0	0.5–2.0	3.22	SO-079	sand, sand and gravel, sand	X
MW-514D	2" SCH 40 PVC	Flush Mount	3/30/2005	25.5	24.90	20.0–25.0	18.0–25.5	16.0–18.0	1.0–18.0	3.23	SO-079	sand, silty sand	X

TABLE 2
Monitoring Well Construction Table
OMC Plant 2

Well ID	Well diameter	Surface Completion	Date Installed	Total Depth (ft bgs)	Total Depth (ft btoc)	Screened Interval (ft bgs)	Filter Pack (ft bgs)	Annular Seal (ft bgs)	Bentonite/ Bentonite Slurry (ft bgs)	Initial Water Level (ft btoc)	Soil Boring Reference ID	Screened Zone Material	Surface Completion
Larson Marine Property–Near Slip 4													
MW-515S (North of Seahorse Drive)	2" SCH 40 PVC	Flush Mount	3/31/2005	8.5	7.90	3.0–8.0	2.5–8.5	0.5–2.5	0.5–2.5	2.24	SO-072	sand	X
MW-515D (North of Seahorse Drive)	2" SCH 40 PVC	Flush Mount	3/31/2005	26.5	26.23	21.0–26.0	19.0–26.5	17.0–19.0	1.0–19.0	2.19	SO-072	silty sand	X
MW-516S	2" SCH 40 PVC	Flush Mount	3/29/2005	8.5	8.23	3.0–8.0	2.5–8.5	1.0–2.5	1.0–2.5	3.60	SO-077	sandy fill, sand	X
MW-516D	2" SCH 40 PVC	Flush Mount	3/29/2005	25.5	25.41	20.0–25.0	18.0–25.5	16.0–18.0	1.0–18.0	3.61	SO-077	silty sand	X
Within the Plant 2 Building													
MW-504S	2" SCH 40 PVC	Flush Mount	3/18/2005	9.5	9.41	4.0–9.0	3.5–9.5	1.0–3.5	1.0–3.5	6.02	SO-067	silty sand and gravel fill, sandy silty clay, and sand and gravel	X
MW-504D	2" SCH 40 PVC	Flush Mount	3/18/2005	29.5	28.50	24.0–29.0	22.0–29.5	20.0–22.0	2.0–22.0	5.93	SO-067	silty sand	X
MW-505S	2" SCH 40 PVC	Flush Mount	3/18/2005	9.5	8.78	4.0–9.0	3.5–9.5	1.0–3.5	1.0–3.5	5.51	SO-071	sand, silty clayey sand, and sand	X
MW-505D	2" SCH 40 PVC	Flush Mount	3/25/2005	27.5	25.42	22.0–27.0	20.0–27.5	18.0–20.0	2.0–20.0	5.31	SO-071	sand, silty sand, and sand	X
MW-506S	2" SCH 40 PVC	Flush Mount	3/18/2005	9.5	9.23	4.0–9.0	3.5–9.5	1.0–3.5	1.0–3.5	5.78	SO-068	sand and gravel	X
MW-506D	2" SCH 40 PVC	Flush Mount	3/25/2005	28.5	27.53	23.0 -28.0	21.0–28.5	19.0–21.0	2.0–21.0	5.77	SO-068	silty sand	X
MW-510S	2" SCH 40 PVC	Flush Mount	3/18/2005	9.5	9.23	4.0–9.0	3.5–9.5	1.0–3.5	1.0–3.5	5.81	SO-069	silty clay and sand and gravel	X
MW-510D	2" SCH 40 PVC	Flush Mount	4/4/2005	27.5	27.28	22.0–27.0	20.0–27.5	18.0–20.0	2.0–20.0	5.81	SO-069	silty sand and silty sand and gravel	X
MW-511S	2" SCH 40 PVC	Flush Mount	3/18/2005	9.5	9.27	4.0–9.0	3.5–9.5	1.0–3.5	1.0–3.5	6.27	SO-070	Clayey sand, sand, and sand and gravel	X
MW-511D	2" SCH 40 PVC	Flush Mount	3/25/2005	28.5	28.51	23.0–28.0	21.0–28.5	19.0–21.0	2.0–21.0	6.33	SO-070	silty sand	X
Additonal Monitoring Wells Locations													
MW-508S (Along eastern access road)	2" SCH 40 PVC	Flush Mount	3/22/2005	7.0	6.23	1.5–6.5	1.0–7.0	0.5–1.0	0.5–1.0	3.51	SO-066	sand	X
MW-508D (Along eastern access road)	2" SCH 40 PVC	Flush Mount	3/22/2005	29.5	29.46	24.0–29.0	22.0–29.5	20.0–22.0	2.0–22.0	3.51	SO-066	silty sand	X
MW-512S (South of Triax Building)	2" SCH 40 PVC	Flush Mount	3/31/2005	8.0	7.34	2.5–7.5	2.0–8.0	0.5–2.0	0.5–2.0	2.80	SO-074	sand, sand and gravel, sand	X
MW-512D (South of Triax Building)	2" SCH 40 PVC	Flush Mount	3/31/2005	25.5	25.53	20.0–25.0	18.0–25.5	16.0–18.0	2.0–18.0	2.86	SO-074	silty sand	X
Replacement Monitoring Well Locations													
MW-500S	2" SCH 40 PVC	Stick-up	3/28/2005	7.0	9.07	1.5–6.5	1.0–7.0	0.5–1.0	0.5–1.0	3.64	SO-076	sand and sand and gravel	X
MW-500D	2" SCH 40 PVC	Stick-up	3/28/2005	26.0	27.12	20.5–25.5	18.5–26.0	16.5–18.5	2.0–18.5	3.72	SO-076	silty sand, clayey sandy silt, silty and sandy, silty gravel	X
MW-501S	2" SCH 40 PVC	Stick-up	4/4/2005	7.0	10.22	1.5–6.5	1.0–7.0	0.5–1.0	0.5–1.0	5.15	SO-073	sand and silty sand	X
MW-501D	2" SCH 40 PVC	Stick-up	4/4/2005	28.5	31.27	23.0–28.0	21.0–28.5	19.0–21.0	2.0–21.0	5.10	SO-073	silty sand, silty sandy clay, and silty sand	X

Notes:
a. ft bgs = feet below ground surface.
b. ft btoc = feet below top of casing
c. NA = not available
d. "S" suffix for well ID indicates shallow monitoring well
e. "D" suffix for well ID indicates deep monitoring well

TABLE 3
Monitoring Well Development Table
OMC Plant 2

Well ID	Date Developed	Initial DTW (ft btoc)	Ending Parameters: Turbidity (NTU)	Ending Parameters: Temp (C)	Ending Parameters: pH	Ending Parameters: Conductance (uS/cm)	Remarks	Development Method
Existing Monitoring Wells								
W-3	4/22/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-4	4/22/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-5	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-6	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-7	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-8	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-9	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-10	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-11	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-12	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
W-13	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-100	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-101	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-102	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-3S	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-3D	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-11S	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-11D	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-14S	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-14D	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-15S	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-15D	4/19/2005	NA	NA	NA	NA	NA	NA	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
Chemical Storage Area								
MW-509S	4/14/2005	0.90	3.9	9.06	7.22	1,472	Clear	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-509D	4/14/2005	0.89	23.6	10.80	7.20	2,606	Slightly cloudy	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-517S	4/18/2005	4.09	2.4	10.96	7.19	726		Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-517D	4/18/2005	4.07	9.7	11.66	7.28	1,494	Slight sheen early in development	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
Northwest Portion of Site								
No monitoring wells installed due to existing monitoring well coverage and lack of viable location.								
Outside of Chip Dock Area								
MW-502S	4/18/2005	4.61	2.6	8.46	6.93	796	Clear, no odor	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-502D	4/18/2005	4.50	5.0	12.02	6.78	1,637		Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
Outside of Chip Room								
MW-503S	4/18/2005	2.25	7.2	7.19	6.78	931	Sheen, oily odor, PID $\geq$ 118.4 ppm	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser
MW-503D	4/18/2005	2.20	8.2	12.66	6.71	2,918	Slight sheen, blue-green color, PID $\geq$ 571 ppm	Dual in-line Whale ™ Pumps attached to 1" SCH 40 PVC riser

TABLE 3
Monitoring Well Development Table
OMC Plant 2

Well ID	Date Developed	Initial DTW (ft btoc)	Ending Parameters: Turbidity (NTU)	Temp (C)	pH	Conductance (uS/cm)	Remarks	Development Method
Parking Lot between Old Die Cast Area and New Die Cast Area								
MW-507S	4/18/2005	4.32	2.9	8.57	7.36	386	Clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-507D	4/18/2005	4.38	7.6	11.36	7.29	684	Slight sulfur odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
Near Corporate Offices								
MW-513S	4/14/2005	3.49	0.3	9.00	7.28	814	Clear	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-513D	4/14/2005	3.51	4.1	12.99	7.18	1,345	Clear	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-514S	4/14/2005	3.22	9.3	8.22	7.20	1,065	Slightly cloudy-clear	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-514D	4/14/2005	3.23	17.5	11.57	7.02	1,601	Slightly cloudy	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
Larson Marine Property - Near Slip 4								
MW-515S (North of Seahorse Drive)	4/15/2005	2.24	1.3	8.27	7.26	423	Sulfur odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-515D (North of Seahorse Drive)	4/15/2005	2.19	6.9	11.66	7.19	3,676	Sulfur odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-516S	4/15/2005	3.60	0.9	8.37	6.77	841	Sulfur odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-516D	4/15/2005	3.61	5.7	11.18	7.39	7,802	Strong sulfur odor, degassing	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
Within the Plant 2 Building								
MW-504S	4/18/2005	6.02	-0.1	9.07	6.78	1,013	Clear, no odor, PID 56.5 ppm	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-504D	4/18/2005	5.93	9.0	13.88	7.20	1,739	Mostly clear, sulfur odor, foam, PID 9.2 ppm	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-505S	4/18/2005	5.51	3.6	11.37	6.79	988		Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-505D	4/18/2005	5.31	8.1	15.36	6.90	1,305	slight solvent-like odor and organic	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-506S	4/18/2005	5.78	0.2	9.84	7.10	910	Clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-506D	4/18/2005	5.77	4.8	15.46	6.94	1,500	Clear, sulfur odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-510S	4/19/2005	5.81	NA	NA	NA	NA	Purged dry	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-510D	4/19/2005	5.81	0.4	15.52	7.28	1,438	Suds on water	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-511S	4/19/2005	6.27	-0.1	10.51	6.62	816	Clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-511D	4/19/2005	6.33	5.8	14.88	7.18	803	Clear, sulfur odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
Additonal Monitoring Wells Locations								
MW-508S (Along eastern access road)	4/14/2005	3.51	NA	NA	NA	NA	Purged dry	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-508D (Along eastern access road)	4/14/2005	3.51	24.4	12.06	7.46	609	Clear	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-512S (South of Triax Building)	4/14/2005	2.80	4.4	11.54	7.16	770	Clear	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-512D (South of Triax Building)	4/14/2005	2.86	5.3	14.66	7.24	1,262	Clear	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
Replacement Monitoring Well Locations								
MW-500S	4/13/2005	3.64	5.0	9.05	7.27	582	Clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-500D	4/13/2005	3.72	10.2	12.13	7.14	1,655	Clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-501S	4/13/2005	5.15	2.0	7.18	7.07	834	Mostly clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser
MW-501D	4/13/2005	5.10	2.5	10.12	7.22	747	Mostly clear, no odor	Dual in-line Whale™ Pumps attached to 1" SCH 40 PVC riser

Notes:
a. ft btoc = feet below top of casing
b. NA = not available

TABLE 4

Monitoring Well and Piezometer Abandonment Table

OMC Plant 2

Well ID	Well diameter	Surface Completion	Date Installed	Date Abandoned	Abandonment Method
W-2A	1.25" S.S.	Stick-up	7/19/1979	4/4/2005	Casing removed below ground surface, grout to surface using tremie pipe.
W-2B	1.25" S.S.	Stick-up	7/20/1979	4/4/2005	Casing removed below ground surface, grout to surface using tremie pipe.
W-2C	1.25" S.S.	Stick-up	NA	4/5/2005	Casing removed below ground surface, grout to surface using tremie pipe.
W-4A	2" S.S.	Stick-up	7/23/1979	4/5/2005	Casing removed below ground surface, grout to surface using tremie pipe.
W-4B	2" S.S.	Stick-up	7/24/1979	4/5/2005	Casing removed below ground surface, grout to surface using tremie pipe.
W-4C	2" S.S.	Stick-up	7/24/1979	4/19/2005	Casing removed below ground surface, grout to surface using tremie pipe.
TP-10/TW-2	3/4" SCH 40 PVC	None	NA	4/20/2005	Casing removed, granular bentonite to surface.
W-14-JRB	1.5" S.S.	Stick-up	NA	4/19/2005	Casing removed below ground surface, grout to surface using tremie pipe.
TP-1	3/4" SCH 40 PVC	None	NA	4/19/2005	Casing removed, granular bentonite to surface.
MW-T106/TP-7	3/4" SCH 40 PVC	None	NA	4/19/2005	Casing removed, granular bentonite to surface.
MW-T105/TP-8	3/4" SCH 40 PVC	None	NA	4/19/2005	Casing removed, granular bentonite to surface.
MW-T104/TP-2	3/4" SCH 40 PVC	None	NA	4/19/2005	Casing removed, granular bentonite to surface.
MW-T101	3/4" SCH 40 PVC	None	NA	4/19/2005	Casing removed, granular bentonite to surface.
TP-11	3/4" SCH 40 PVC	None	NA	4/19/2005	Casing removed, granular bentonite to surface.

TABLE 5
Groundwater Field Parameters Summary
OMC Plant 2 Site

Well ID	Well Depth (ft)	Initial DTW (ft)	Ending Parameters							Flow Rate (ml/min)
			DTW (ft)	pH	Temp (C)	Conductance (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	
Existing Monitoring Wells										
W-3	24.20	3.99	4.00	7.19	9.69	1037	1.20	47.1	-78.6	100
W-4	23.64	2.07	2.11	7.27	11.31	945	0.85	44.0	-122.5	100
W-5	35.21	7.21	7.27	7.35	12.33	702	0.50	3.6	2.9	100
W-6	32.10	6.15	6.19	N/A	11.42	2282	1.32	33.6	31.6	100
W-7	30.84	4.24	4.29	7.29	12.45	1099	0.79	52.2	-145.2	90
W-9	27.37	4.80	4.82	N/A	11.68	981	0.63	10.7	51.7	90
W-10	25.05	4.00	4.04	N/A	10.81	1626	0.63	46.2	112.3	80
W-11	21.72	5.64	5.67	6.85	13.20	1213	1.71	5.8	-112.9	100
W-12	29.10	4.40	4.43	N/A	11.52	604	0.26	10.0	-31.5	150
W-13	12.48	5.65	5.67	7.34	9.57	579	0.30	43.3	-192.7	90
MW-100	12.39	3.77	3.79	N/A	9.85	317	0.52	4.4	106.5	100
MW-101	12.47	4.05	4.06	N/A	11.18	489	0.36	2.4	13.9	100
MW-102	12.47	4.67	4.67	N/A	10.70	578	1.09	-0.6	72.0	110
MW-3S	14.89	6.22	6.22	N/A	10.85	544	0.48	-1.0	164.0	110
MW-3D	30.81	6.20	6.23	N/A	11.13	7471	2.06	11.1	114.4	90
MW-11S	14.22	6.10	6.11	7.11	8.05	544	0.57	20.7	-119.9	110
MW-11D	30.71	6.00	6.02	7.14	9.42	1411	0.58	68.8	-130.9	110
MW-14S	11.33	2.32	2.33	7.35	8.89	742	0.40	2.8	-218.0	120
MW-14D	29.78	2.44	2.49	7.51	11.47	3665	1.64	-0.6	-198.4	95
MW-15S	11.84	2.95	2.95	7.13	8.31	455	0.54	13.2	259.7	120
MW-15D	28.62	3.00	3.03	7.02	9.98	1288	0.72	23.3	-118.4	100
Chemical Storage Area										
MW-509S	6.46	1.10	1.11	7.02	12.37	1176	0.19	-3.0	-11.1	100
MW-509D	19.38	1.08	1.09	N/A	9.97	1842	0.60	40.7	22.3	90
MW-517S	9.75	4.25	4.25	7.10	11.78	730	0.17	0.6	-67.4	80
MW-517D	22.53	4.24	4.25	7.07	12.26	1328	0.27	11.30	80.4	110
Outside of Chip Dock Area										
MW-502S	9.87	4.79	4.81	6.96	12.70	807	0.35	5.2	-43.4	100
MW-502D	25.84	4.69	4.71	6.84	12.62	1459	0.35	13.70	-44.6	100
Outside of Chip Room										
MW-503S	7.33	2.43	2.45	6.60	8.90	801	0.21	3.1	-44.1	110
MW-503D	23.89	2.42	2.45	6.50	10.71	2334	0.32	8.5	-29.9	90
Parking Lot between Old Die Cast Area and New Die Cast Area										
MW-507S	9.64	4.47	4.48	7.42	9.08	335	0.52	3.7	-161.7	100
MW-507D	26.08	4.49	4.54	7.34	9.64	600	0.31	28.8	-163.8	100
Near Corporate Offices										
MW-513S	7.21	3.59	3.60	7.27	9.27	523	0.99	3.9	-68.3	90
MW-513D	23.31	3.65	3.68	7.18	10.02	745	0.94	17.4	-111.2	100
MW-514S	6.93	3.47	3.47	7.09	10.81	574	0.43	0.9	8.7	100
MW-514D	24.90	3.46	3.48	7.16	11.30	978	0.22	14.0	-75.9	110
Larson Marine Property - Near Slip 4										
MW-515S (north of Seahorse Drive)	7.90	2.47	2.47	7.19	9.28	482	0.43	2.5	-91.6	90
MW-515D (north of Seahorse Drive)	26.23	2.98	2.38	7.14	10.45	3488	0.27	9.9	-55.0	90
MW-516S	8.23	3.78	3.79	6.57	8.98	749	1.14	4.3	10.5	90
MW-516D	25.41	3.78	3.83	7.44	9.20	6922	0.27	7.9	-70.5	90
Within the Plant 2 Building										
MW-504S	9.41	6.23	6.24	6.46	9.60	808	0.37	3.6	162.8	90
MW-504D	28.50	6.18	6.21	7.04	11.46	1330	0.20	9.9	-43.9	85
MW-505S	8.78	5.71	5.73	6.58	11.45	1155	0.21	4.9	-77.0	90
MW-505D	25.42	5.51	5.56	6.74	13.16	1108	0.20	75.4	5.7	90
MW-506S	9.23	6.01	6.02	6.94	10.11	863	0.30	6.4	-66.4	110
MW-506D	27.53	6.01	6.04	6.86	12.51	1252	1.11	23.2	-65.1	95
MW-510S	9.23	5.97	6.01	7.04	11.25	652	0.48	3.5	-7.3	95
MW-510D	27.28	6.00	6.02	7.20	13.23	1234	0.63	13.2	-92.8	110
MW-511S	9.27	6.46	6.46	6.66	10.76	816	0.68	0.4	107.5	85
MW-511D	28.51	6.52	6.52	7.18	12.61	687	0.56	26.0	-26.3	80
Additonal Monitoring Wells Locations										
MW-508S (along eastern access road)	6.23	3.59	3.60	7.29	9.70	485	0.36	3.4	-127.1	110
MW-508D (along eastern access road)	29.46	3.59	3.66	7.42	10.88	417	0.31	39.3	-142.3	110
MW-512S (south of Triax Building)	7.34	3.07	3.07	6.94	12.03	451	0.47	5.7	158.2	90
MW-512D (south of Triax Building)	25.53	3.09	3.12	7.12	12.21	892	0.19	10.5	-43.8	90
Replacement Monitoring Well Locations										
MW-500S	9.07	3.86	3.88	N/A	10.95	366	0.49	7.3	221.6	90
MW-500D	27.12	3.83	3.83	N/A	13.06	1791	0.25	31.3	-18.0	100
MW-501S	10.22	5.03	5.05	7.13	11.21	1013	1.20	1.9	-36.7	100
MW-501D	31.27	5.00	5.03	7.36	10.08	605	0.51	18.7	-141.8	90

Attachment 1

Monitoring Well Installation Soil Boring Logs

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-500	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot, along North Guardrail
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.3' bgs START: 3/25/05 FINISH: 3/25/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4				Asphalt, silty, sandy gravel fill, HF, dark brown, dry	PID = 0.0 ppm
	0.4-0.9		3.2/4		Sandy, clay and gravel fill, HF, orange-brown, damp	Some sands may be of "foundry sand" origin PID = 0.0 ppm
1	0.9-2.3				Sand, SP, light brown, moist, loose; trace gravel; sands are coarse-grained	
2						∇ water table @ ~ 2.3' bgs
	2.3-4				Sand, SP, tan/brown, wet; sands are fine- to medium-grained	PID = 0.0 ppm
3						
						PID = 0.0 ppm
4	4-6		3.9/4		Sand and gravel, SP, light brown, wet; coarse-grained sands; gravel is subrounded to rounded	PID = 0.0 ppm
5						
6	6-8				Sand and gravel, SP, light grey to grey/brown, wet; sands are fine to medium with coarse sand/gravel lenses (6.9-7.1' bgs and 7.5-7.7' bgs)	PID = 0.0 ppm
7						
8	8-13.3		2.7/4		Sand, SP, grey/brown to grey, wet; trace gravel; sands are fine to medium with coarse sand/gravel lenses at 8.6-8.7' bgs and coarse sands at 12.6-13.3' bgs	PID = 0.7 ppm PID = 4.8 ppm PID = 9.5 ppm PID = 7.9 ppm PID = 2.1 ppm
9						
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-500	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot, along North Guardrail
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.3' bgs START: 3/25/05 FINISH: 3/25/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/4			PID = 15.3 ppm
13						PID = 2.1 ppm
	13.3-20.7				Silty sand, SM/SP grey/brown to grey, wet, fine sands; clay lens at 14.1-14.13' bgs; trace gravel	PID = 0.0 ppm
14						
15						
16			2.7/4			PID = 0.0 ppm
17						PID = 0.0 ppm
18						PID = 0.0 ppm
19						
20	20.7-20.9		3/4		Silty sand, SP/SM, grey/brown, wet; trace gravel; fine sands	
	20.9-21.3				Clayey, sandy, silt, ML, grey/brown, wet, laminations	
21	21.3-25				Silty sand, SP/SM, grey/brown, wet, trace gravel; fine sands, trace shell fragments	
22						
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-500	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot, along North Guardrail
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.3' bgs START: 3/25/05 FINISH: 3/25/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/4			
25	25-25.4				Sandy, silty gravel, GM, grey/brown, wet, shell fragments, some whole shells intact; gravel is subangular to subrounded	
	25.4-28				Silty clay, CL, brown, damp, stiff (till)	
26						
27						
28					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-501	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along North Ditch NE Corner of Site
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1.5' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3		2.5/4		Sandy topsoil and gravel fill, HF, brown to light brown, damp, loose	PID = 0.0 ppm
	0.3-4.8				Sand, SP, light brown, damp to wet at ~ 1.5' bgs; trace gravel	PID = 0.0 ppm
1						
2						
3						PID = 0.0 ppm
4			3/4			
5	4.8-8				Silty sand, SM, dark grey, wet, trace gravel; sands are fine to medium; gravel is angular to rounded	Odor: "organics" PID = 0.0 ppm
6						
7						
8	8-13.8		2.6/4		Sand, SP, grey to grey/brown, wet, fine to coarse sands; trace gravel; very coarse sands from 8-8.4' bgs and 9.8-10.3' bgs are dark grey to black in color; black coating on gravels	PID = 0.0 ppm PID = 0.0 ppm Odor: "organics"
9						
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-501	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along North Ditch NE Corner of Site
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1.5' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/4		Very coarse sands and gravel from 12-12.5' bgs are dark grey to black in color; black coating on gravels;	Odor: "organics"
13						
14	13.8-25				Silty sand, SP, grey/brown, wet; trace gravel; sands are very fine to medium	PID = 0.0 ppm
15						
16						PID = 0.0 ppm
			2.2/4			
17						
18						
19						
20						
			2.6/4			
21						
22						
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-501	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along North Ditch NE Corner of Site
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1.5' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4			PID = 0.0 ppm
25	25-25.3				Silty sandy clay, SC, grey/brown, wet, laminations throughout interval	
	25.3-28.5				Silty sand, SM/SP, grey brown, wet, laminations from 25.3-25.7' bgs	
26						
27						
28						
					EOB @ 28.5' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-502	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Northwest Loading Dock
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.4/4		Silty sand and gravel fill, HF, light brown, dry, loose	
	0.7-1.5				Silty sandy clay fill, HF, orange/brown, dry, loose	PID = 0.0 ppm
1						
	1.5-6				Silty sand, SP/SM, light brown to dark grey, black streaks near top of interval, moist to wet at 4' bgs; trace gravel, sands are fine to medium	Collect geotech sample from 1.5-2.5' bgs
2						
3						Collect soil sample from 2.6-3.4' bgs
4						∇ water table @ ~4' bgs (rough estimate)
			4/4			
5						
6						
	6-6.3				Silty clay, OL, black, wet, highly organic, partially decomposed plant matter	PID = 0.0 ppm
	6.3-7				Sand, SP, light brown, wet, trace gravel; sands are fine to medium	Collect geotech sample from 6.5-7.5' bgs
7	7-8				Sand and gravel, SP, grey-brown, wet; trace shell fragments; gravels are well rounded	Collect soil sample from 7.5-8' bgs PID = 0.0 ppm
8	8-8.3		3.6/4		Gravel, SP, various colors, wet; rounded gravels	
	8.3-12.7				Sand and gravel, SP, grey-brown, wet, trace shell fragments	PID = 0.0 ppm
9						
10						
11						
12						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-502	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Northwest Loading Dock
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12.7-23.5				Silty sand, SP/SM, brown, wet; trace gravel and shell fragments	PID = 0.0 ppm
13						
14						
15						
16			3.1/4			PID = 0.0 ppm
17						
18						
19						
20			2.5/3.5			Collect geotech sample from 20.5-22' bgs
21						PID = 0.0 ppm
22						Collect soil sample from 22-22.5' bgs
23						
24					Refusal at 23.5' bgs	

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-503	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Chip Wringer, Outside Building
ELEVATION: DRILLING CONTRACTOR IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0	0-0.8		2.3/4		Silty clay and gravel fill, HF, white to light brown, dry, loose	~ 9" of concrete above soil PID = 0.9 ppm
1	0.8-1.3				Silty clay and gravel fill, HF, orange brown, damp, medium	PID = 29.4 ppm Collect soil sample from 0.8-2.3' bgs
	1.3-4				Sand and gravel, SP, fine to coarse sand, dark brown, loose, moist	PID = 222 ppm, "sheen," "diesel fuel" odor
2						
3						
4	4-8		1.5/4		Sand and gravel, SP, fine to coarse sand, dark brown, wet, loose	Collect soil sample from 4-5.5' bgs PID = 158 ppm, "sheen," "diesel fuel" odor
5						
6						
7						
8	8-12		NA	Liner bent in tube, pour contents out	Sand and gravel, SP, brown to dark brown, wet; sands are fine to medium	PID = 12.3 ppm
9						
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-503	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: Near Chip Wringer, Outside Building

ELEVATION: — DRILLING CONTRACTOR IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: Estimated ~ 4' bgs (rough estimate) — START: 3/15/05 — FINISH: 3/15/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-13.7		3/4		Sand, SP, brown, wet; sands are fine to medium	PID = 8.9 ppm
13						
	13.7-14.4				Sand and gravel, SP, fine to coarse sand, brown, wet	PID = 41.9 ppm
14						
	14.4-16				Sand, SP, brown, wet, fine to medium sands	PID = 6.8 ppm
15						
16						
	16-20		3.1/4		Sand, SP, brown, wet, trace gravel from 16.8-17.3' bgs; sand is fine- to medium-grained	PID = 35.1 ppm
17						
18						
19						
20						
	20-24.6		3/4		Silty sand, SP/SM, grey/brown to brown, wet; trace gravel, sand is fine- to medium-grained	PID = 156.3 ppm Collect geotech sample from 20.5-22' bgs
21						
22						Collect soil sample from 22-24.6' bgs
23						
24						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-503	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Chip Wringer, Outside Building
ELEVATION: DRILLING CONTRACTOR IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
25	24.6-25.5		0.6/1.5		Silty sand and gravel, SP/SM, brown, wet; gravel is angular to rounded; trace shell fragments, gravel of various mineralogy	PID = 91.6 ppm "Sheen" on water out of borehole
26					Refusal @ 2.25' bgs	
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-504	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Loading Dock in Shipping and Receiving/MIP-021
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: water table @ ~ 6' bgs START: 3/17/05 FINISH: 3/17/05 LOGGER: C. LaCosse

Depth (ft)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0	0-3.2		3.6/4		Silty sandy clay and gravel fill, HF, brown, dark brown, orange-brown, dry, loose	PID = 9.7 ppm
2						PID = 17.3 ppm
3	3.2-5.8				Silty sand and gravel fill, HF, orange-brown, dry, loose	PID = 15 ppm
4			3.3/4			PID = 12.3 ppm Collect soil sample from 4.5-5' bgs Collect geotech sample from 5-6' bgs
6	5.8-6.5				Sandy silty clay, GL, dark brown/black, some decomposing organic material, wet	∇ water table @ ~6' bgs PID = 1.7 ppm Collect soil sample from 6-6.5' bgs PID = 8.1
7	6.5-12				Sand and gravel, SP, brown, wet; sand is fine to granular; gravel is subrounded to rounded	Collect geotech sample from 6.5-7.5' bgs
8			2.8/4			PID = 45.7 ppm
10						PID = 15.7 ppm
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-504	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Loading Dock in Shipping and Receiving/MIP-021
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: water table @ ~ 6' bgs START: 3/17/05 FINISH: 3/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-16.5		2.9/4		Sand, SP, brown, wet; trace gravel; sand is fine to medium	PID = 24.9 ppm
13						PID = 55.9 ppm
14						PID = 121 ppm
						PID - 53.5 ppm
15						
						PID - 61.4 ppm
16						PID = 63.8
			2.7/4		Silty sand, SP/SM, grey with dark brown/ black laminations, wet; decomposing organics	PID = 72.5
	16.5-17					
17						
	17-19.3				Sand and gravel, SP, grey brown to brown, wet; sand grains medium to granular; gravel subangular to rounded	PID - 70.4
18						
19						
	19.3-28.6				Silty sand, SP/SM, grey to grey/brown, wet; some black laminations (few); sand is very fine to medium	PID = 91.8
20						
			2.3/4			
						PID = 97.6
21						
22						PID = 33.3
23						
						PID = 34.5
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-504	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS
LOCATION: Near Loading Dock in Shipping and Receiving/MIP-021
ELEVATION:
DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: water table @ ~ 6' bgs
START: 3/17/05
FINISH: 3/17/05
LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.7/4			PID = 3.2
25						PID = 0.0
26						PID = 0.0
27						PID = 0.0
28						Collect geotech sample from 28-28.8' bgs
	~ 28.6-28.8	2.9/3.5			Silty sandy gravel, GM, unable to determine colors, wet	No soil sample collected
29	28.8-31.5				Silty clay till, CL, grey/brown, wet	
30						
31						PID = 0.0 ppm
					EOB @ 3.15' bgs (refusal)	
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-505	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: ~ 100' East of Former Solvent Recycling Unit
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.4' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.6/4		Silty, sandy clay and gravel, HF, orange-brown, dry, loose	PID = 0.0 ppm
	0.5-1.1				Sand and gravel fill, HF, light brown, dry; sand is predominantly fine grained	PID = 0.0 ppm
1	1.1-5.7				Sandy fill, HF, light brown, dry to wet at 5.4' bgs, loose; trace clay lenses in sand; trace gravel	
2						
						Collect geotech sample from 2.4-3.4' bgs PID = 0.0 ppm
3						
4			3/4			Collect soil sample from 4-5' bgs
5						PID = 0.0 ppm ∇ water table @ ~ 5.4' bgs
	5.7-6.4				Silty clayey sand, SC, grey to black, wet; trace gravel, trace decomposed organics	
6						PID = 0.0 ppm
	6.4-16				Sand, SP, grey-brown to grey, wet; trace gravel (rounded); fine to medium sands; occasional dark grey cross-bedding	PID = 0.0 ppm
7						
8			3.1/4			Collect geotech sample from 8.3-9.3' bgs
9						Collect soil sample from 9.3-10.3' bgs PID = 0.0 ppm
10						Odor similar to "burnt oil"
11						PID = 0.0 ppm
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-505	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: ~ 100' East of Former Solvent Recycling Unit

ELEVATION: — DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 5.4' bgs — START: 3/22/05 — FINISH: 3/22/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.7/4			PID = 0.0 ppm
13						
						Odor similar to "burnt oil"
14						
15						
16	16-23.6	Liner stuck, could not determine recovery			Sand, SP, light grey to light brown, wet, sands predominantly fine-grained; occasional grey-colored cross-bedding	PID = 12.4 ppm Odor similar to "burnt oil"
17						
18						PID = 6.6 ppm
19						
20			2/4			PID = 17.0 ppm
21						PID = 23.9 ppm
22						PID = 15.3 ppm Odor similar to "burnt oil"
23						
24	23.6-25.1				Silty sand, SM/SP, light grey to light brown, wet; sands are very fine to fine-grained	PID = 15.1 ppm

CH2MHILL

PROJECT NUMBER	WELL NUMBER
186305.FI.01	MW-505 SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: ~ 100' East of Former Solvent Recycling Unit
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.4' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/3			PID = 43.8 Collect geotech sample from 24-25' bgs
25	25.1-27				Sand, SP, grey/brown, wet; sands are fine- to medium-grained	Collect soil sample from 25-26.1' bgs PID = 20.6
26						
27					EOB @ ~ 27' bgs (refusal)	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	SHEET 1 OF 3
186305.FI.01	MW-506	

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Metal Plating Room
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT w/Macrocore Sampler
WATER LEVELS: ~ 5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-5		3.4/4		Silty sand and gravel fill, HF, brown to orange-brown, loose, dry	
1						Collect geotech sample 1-2.5' bgs
2						
3						Collect soil sample 2.5-3.4' bgs
4			3/4			
5	5-8				Sand and gravel, SP, brown, wet, medium sands, subangular to rounded gravel	∇ water table @ ~ 5' bgs Collect soil sample from 5-5.5' bgs Collect geotech sample from 5.5-6.5' bgs
6						
7						
8	8-8.8		2.8/4		Sand and gravel, SP/SW, brown, wet, coarse to granular sands (very coarse sands)	
9	8.8-16				Sand, SP, light brown, wet, trace gravel, rounded to subrounded	
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-506	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Metal Plating Room
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT w/Macrocore Sampler
WATER LEVELS: ~ 5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3/4			Odor similar to "machinery" throughout interval
13						
14						
15						
16	16-20		3.1/4		Sand, SP, grey-brown, wet; sands are fine to medium	Odor similar to "machinery"/"burnt oil" throughout interval
17						
18						
19						
20	20-28.5		3/4		Silty sand, SP/SM, grey, wet; sands are fine-grained, some cross-bedding is visible as black laminations	Odor similar to "machinery"/"burnt oil"
21						
22						
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	**MW-506**	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Metal Plating Room

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT w/Macrocore Sampler

WATER LEVELS: ~ 5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			
25						Odor similar to "machinery"/"burnt oil"
26						
27						
						Fine-grained sandstone in sampler shoe
28						
	28.5-28.6		3.5/3.5		Gravel, GP/GM, grey, wet, subangular	Collect soil sample from 28-28.6' bgs
	28.6-31.5				Silty clay till, CL, grey, dry, very stiff	
29						
30						
31						
					EOB @ 31.5' bgs	
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-507	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Trim Building/Former AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/14/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.4/4		Silty gravel fill, HF, light grey to white, damp, loose	PID = 0.0 ppm
	0.7-1.3				Silty, sandy, clay and gravel fill, HF, brown to orange-brown, damp, loose	
1						
	1.3-2.3				Clayey sand and gravel fill, HF, medium to fine-grained sands, dark brown/black from 1.3-1.6' bgs, tan/brown 1.6-2.3' bgs, moist	Collect soil sample from 1.6-2.3' bgs Collect from second soil core geotech sample from 1.3-2.3' bgs
2						
	2.3-4				Sand and gravel, SP, coarse to medium-grained, grey-brown, moist to wet at 2.7' bgs; gravel is well rounded	PID = 0.0 ppm ∇ water table at 2.7' bgs
3						
4						
	4-9.2		4/4		Sand and gravel, SP, coarse to medium-grained, grey brown, wet; gravel is well rounded	PID = 0.0 ppm Collect geotech sample from 4-6' bgs
5						
6						Collect soil sample from 6-8' bgs
7						
8						
			2.7/4			
9						
	9.2-12				Sand, SP, fine- to medium-grained, grey brown, wet	PID = 0.0 ppm
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-507	SHEET 2 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Trim Building/Former AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/14/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-13.7		3.3/4		Sand and gravel, SP/SW, fine to coarse sands, brown, wet, coarse sands from 12-12.5' and 13.3-13.7' bgs; gravel is subangular to well-rounded	PID = 0.0 ppm
13						
	13.7-16				Silty sand, SP/SM, fine-grained sand, trace gravel, brown to dark brown, wet	End 3/14/05
14						
15						
16						
	16-20		1.3-4		Silty sand, SP/SM, fine-grained, brown, wet	Start 3/15/05 PID = 0.0 ppm
17						
18						
19						
20						
	20-24		2.5-4		Silty sand, SP/SM, fine-grained, grey-brown to brown, wet	PID = 0.0 ppm
21						
22						
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-507	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Trim Building/Former AST Area

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 2.7' bgs START: 3/14/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	24-26.5		3/3		Silty sandy clay, CL, brown, wet, medium	Collect soil sample from 24-24.5' bgs Collect geotech sample from 24.5-26.5' bgs
25						PID = 0.0 ppm
26						
	26.5-27				Till, silty clay and gravel, CL, dark grey/brown, stiff	PID = 0.0 ppm
27					EOB @ 27' bgs, refusal	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-508	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along Eastern Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.2				Topsoil fill, sandy, HF, dark brown, dry, loose	
	0.2-3.4		3.8/4		Sand, SP, brown, damp to wet at ~ 2.1' bgs; medium sands	Collect soil sample from 0.5-1' bgs PID = 0.8 ppm
1						Collect geotech sample from 1-2' bgs
2						∇ water table @ ~ 2.1' bgs
3						
	3.4-4				Sand, SP, grey, wet, medium sands	PID = 1.1 ppm
4	4-10.3		4/4		Sand, SP, brown to grey-brown, wet, medium with trace coarse sands and gravel (rounded)	
5						Collect soil sample from 4.5-5' bgs PID = 0.0 ppm Collect geotech sample from 5-6.5' bgs
6						
7						
8			3/4		Black laminations/bedding at 8.2-8.3' bgs and 9.1-9.2' bgs	
9						
10	10.3-20				Sandy, SP, grey to grey-brown, wet; sands are fine to medium-grained; trace granules (rounded) and coarse sands	PID = 0.0 ppm
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-508	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along Eastern Access Road

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 2.1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.3/4			PID = 0.0 ppm
13						
14						
15						
						PID = 0.0 ppm
16						PID = 0.0 ppm
			2.8/4			
17						
18						
19						PID = 0.0 ppm
20	20-29		NA	Liner bent in sampler, empty contents out	Sand, SP, grey, wet; sand is fine-grained	PID = 0.0 ppm
21						
22						
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-508	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along Eastern Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			NA	Liner bent in sampler, empty contents out	Silty sand, SP/SM, grey, wet.	
25						PID = 0.0 ppm
26						
27						
28						Collect soil sample from 28-29' bgs
			2.8/3			
29						PID = 0.0 ppm
	29-29.6				Silty clay, CH, brown, wet, "sticky," high plasticity, > 4" ribbons	Collect geotech sample from 29-30' bgs
	29.6-30.1				Silty sandy gravel, GM, grey/brown, wet; gravel is subangular to subrounded	PID = 0.0.ppm
30	30.1-31				Silty clay and gravel till, CL, brown, wet, stiff	PID = 0.0 ppm
31						
					EOB @ 31.0' bgs (refusal)	
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-509	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Property Near MIP-028
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		3.6/4		Asphalt, silty sandy clay and gravel fill, HF, dark brown to orange-brown, dry to damp at 0.7' bgs	PID = 0.0 ppm Collect geotech sample from 0.9-1.9' bgs
1	0.9-1.6				Sand, SP, brown to dark brown, damp, fine to medium sands	
	1.6-5.6				Sand, SP, brown, damp to wet at 2.7' bgs	
2						Collect soil sample from 1.9-2.7' bgs
						∇ water table @ ~ 2.7' bgs
3						
4						PID = 0.0 ppm
			3.6/4			
5						
	5.6-8				Sand and gravel, SP, brown, wet, fine to coarse sands	
6						Collect soil sample from 6-6.4' bgs PID = 0.0 ppm Collect geotech sample from 6.4-7.4' bgs
7						
8	8-21		3/4		Sand, SP, grey-brown, wet, fine to medium sands; trace granules and gravel, gravel is rounded	PID = 0.0 ppm
9						
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-509	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS
LOCATION: West Side of Property Near MIP-028
ELEVATION:
DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.3/4		Very coarse sand interval 12-12.5' bgs	PID = 0.0 ppm
13					13	
14					14	
15					15	
16					16	
			3/4			PID = 0.0 ppm
17					17	
18					18	
19					19	
						Collect soil sample from 19.5-20' bgs
20					20	
			1/1			Collect geotech sample from 20-21' bgs
21					21	
					EOB, refusal at 21' bgs	
22					22	
23					23	
24					24	

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-510	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Near MIP-043

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT

WATER LEVELS: ~ 5.5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		2/4		Silty sand and gravel fill, HF, orange-brown to grey, dry	PID = 0.0 ppm Collect soil sample from 0-1.7' bgs
1	0.9-6				Sand and gravel fill, HF, light brown to brown, dry to moist; wood (decomposed) at 1.7-1.9' bgs	PID = 0.0 ppm
2						
3						
4			2.9/4			Collect geotech from 4-5.5' bgs
5						∇ water table @ ~ 5.5' bgs
6	6-6.3				Silty clay, OH, dark brown, wet	Collect geotech sample from 5.5-6.5' bgs
	6.3-9.2				Sand and gravel, SP, grey-brown, wet; medium sands	PID = 0.0 ppm
7						
8			2.4/4			Collect soil sample from 8-10.4' bgs
9	9.2-9.4				Sand and gravel, SP, grey, wet, very coarse sands	
	9.4-15.4				Sand, SP, grey to grey/brown, wet; medium sands, trace gravel	PID = 0.0 ppm
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-510	SHEET 2 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Near MIP-043
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT
WATER LEVELS: ~ 5.5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					Trace coarse sand from 12.1-12.3' bgs	
			3.6/4			PID = 0.0 ppm
13						
14						
15						
	15.4-20				Sand, SP, grey, wet; sand is fine- to medium-grained; trace gravel	
16						Odor similar to "machinery" or "burnt oil"
			2.8/4			PID = 0.0 ppm
17						
18						
19						
20						
	20-25.5				Silty sand, SP/SM, grey, wet; sand is very fine- to fine-grained; trace gravel	PID = 0.0 ppm
			2.5/4			
21						
22						
						PID = 0.0 ppm
23						
24						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-510	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Near MIP-043
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT
WATER LEVELS: ~ 5.5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3.4/4			Collect soil sample from 24-25.5' bgs
25						
26	25.5-27.5				Silty sand and gravel, SP/SM, grey, wet; gravel of various sizes; subangular to rounded gravel	PID = 0.0 ppm
27						Collect geotech sample from 26.5-27.5' bgs
28	27.5-28				Silty clay, CL, dark grey, very stuff, dry	PID = 0.0 ppm
					EOB @ 28' bgs	
29						
30						
31						
32						
33						
34						
35						
36						

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CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-511	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Just West of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe 2" O.D. Macrocore Sampler
WATER LEVELS: ~ 5.5' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		3.8/4		Silty sandy clay and gravel fill, HF, orange-brown to dark brown, dry to damp at ~ 1' bgs, loose	PID = 2.1
1	0.9-2				Sandy fill, HF, light brown, damp, trace gravel; sand is fine- to medium-grained	PID = 3.4
2	2-2.7				Sandy clay fill, HF, brown to dark brown, damp, trace gravel	PID = 2.4
	2.7-3.3				Sandy fill, HF, light brown, damp	PID = 2.1
3	3.3-5				Clayey sand fill, HF, dark brown to brown, damp	Collect soil sample from 3.3-4.5' bgs PID = 14.3
4			2.9/4			Collect geotech sample from 4.5-5.5' bgs
5	5-8				Sand, SP, light brown, damp to wet at 5.5' bgs; trace gravel	PID = 0.0 ppm ∇ water table @ ~ 5.5' bgs
6						
7						
8	8-8.4		3/4		Sand and gravel, SP, light brown, wet; gravel is subrounded to well rounded; very coarse sands from 8-8.4' bgs; otherwise, medium sands	Collect geotech sample from 8-9.5' bgs PID = 0.0 ppm
	8.4-17.6				Sand, SP, brown, wet, trace gravel; sands are medium with occasional coarse sands	
9						PID = 0.0 ppm Collect soil sample from 9.5-10.5' bgs
10						
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-511	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Just West of Triax

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe 2" O.D. Macrocore Sampler

WATER LEVELS: ~ 5.5' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4			
13						
14						
15						
16						
			2.3/4			PID = 0.0 ppm
17						
	17.6-17.8				"Gravels increase just above silty clay;" silty clay, CL, grey, wet, very soft	PID = 0.0 ppm Odor similar to "burnt oil"
18	17.8-21.3				Sand, SP, grey/brown, wet, fine to medium sands	
19						
20						
21						PID = 0.0 ppm Odor similar to "burnt oil"
	21.3- ?	Not able to determine--sample liner stuck			Silty sand, SM/SP, grey, wet	
22						
23						
24						PID = 0.0 ppm

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-511	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Just West of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe 2" O.D. Macrocore Sampler
WATER LEVELS: ~ 5.5' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4			
25						
26						PID = 0.0 ppm
27						
28						Collect soil sample from 28-28.9' bgs
			1.9/3			PID = 0.0 ppm
29						Collect geotech sample from 28.9-29.9' bgs
30						
31					EOB at 31' bgs (refusal)	
32						
33						
34						
35						
36						

PROJECT NUMBER 186305.FI.01 | **WELL NUMBER** MW-512 | SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South of Triax/MIP-070
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4		3.5/4		Asphalt, silty sandy gravel fill, HF, grey to brown, dry, loose	PID = 0.0 ppm Collect soil sample from 0.4-0.8' bgs
1	0.4-1.7				Silty sandy clay and gravel fill, HF, brown to light tan, dry to damp, loose, some brick pieces at bottom of interval	Collect geotech sample from 0.5-1.5' bgs
2	1.7-2.4				Silty, sand and gravel fill, HF, black, moist to wet at 2.1' bgs	PID = 0.0 ppm Collect soil sample from 2.1-2.4' bgs
3	2.4-4.8				Sand, SP, light brown, wet, trace gravel, medium sands	Possible "foundry sands" PID = 0.0 ppm PID = 0.0 ppm Collect geotech sample from 2.5-3.5' bgs
4			3.6/4			
5	4.8-6.1				Sand and gravel, SP, light brown, wet, medium sands	PID = 1.4 ppm
6	6.1-6.7				Sand and gravel, GP/SP, light brown, wet, very coarse sands, gravel is rounded to subrounded	PID = 2.8 ppm
7	6.7-10.7				Sand, SP, light brown, wet, trace gravel and medium sands	PID = 7.4 ppm
8			3.6/4			
9						PID = 9.9 ppm
10						PID = 8.1 ppm
11	10.7-17.3				Sand, SP, grey/brown, wet, fine to medium sands, trace coarse sands and gravel	PID = 7.6 ppm
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-512	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South of Triax/MIP-070

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 2.1' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
12		Liner stuck; unable to determine recovery				PID = 11.0 ppm
13						PID = 9.9 ppm
14						
15						
16			2.5/4			PID = 10.8 ppm
17	17.3-25.2				Silty sand, SM/SP, grey to grey/brown, wet, dark grey silt laminations near top of interval	PID = 6.7 ppm
18						
19						PID = 5.8 ppm
20			2.9/4			
21						PID = 6.7 ppm
22						Collect soil sample from 22 to 22.9' bgs PID = 7.1 ppm
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-512	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South of Triax/MIP-070

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 2.1' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	NUMBER AND TYPE	RECOVERY (FT)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.2/3			Collect geotech sample from 24.1-25.1' bgs PID = 44.8 ppm
25	25.2-25.6				Silty clay, CH, brown, wet, elastic	PID = 0.2 ppm
	25.6-25.8				Silty gravel, GM, grey, wet	
26	25.8-27				Till, silty clay, CL, grey, damp, stiff, trace gravel	
27						
					EOB @ 27' bgs (refusal)	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-513	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS   LOCATION: West Side of Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' bgs   START: 3/24/05   FINISH: 3/24/05   LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3.7/4		Silty clay topsoil fill, HF, dark brown, damp, medium soft	PID = 0.0 ppm
1	0.8-2.3				Silty clay and gravel fill, HF, orange-brown, damp, medium soft	PID = 0.0 ppm
2	2.3-3.4				Silty, clayey, sand and gravel fill, HF, brown to orange-brown, damp to moist	Collect geotech sample from 2.4-3.3' bgs PID = 0.0 ppm Collect soil sample from 2.4-2.8' bgs
3	3.4-5.9				Sand, SP, grey to light brown, wet, trace gravel; medium sands	PID = 0.0 ppm
4			2.9/4			
5						PID = 0.0 ppm
						Collect soil sample from 5.4-5.9' bgs PID = 0.0 ppm
6	5.9-6.6				Sand and gravel, GP, light brown, wet; gravel is subangular to well-rounded	Collect geotech sample from 5.9-6.9' bgs
	6.6-13.3				Sand, SP, light brown, wet, trace gravel; medium sands, trace coarse sands	PID = 0.0 ppm
7						
8			2.7/4		Zone of gravel 8.3-8.4' bgs	PID = 0.0 ppm
9						
					Coarse sands 9.7-10.2' bgs	PID = 0.0 ppm
10						PID = 0.0 ppm
11						
12						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-513	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			1.7/4		Coarse sand bedding at 12.1 to 12.3' bgs and 12.9' bgs	PID = 0.0 ppm
13	13.3-16.6				Sand, SP, light brown to grey/brown, wet, fine sands, trace gravel and coarse sands	PID = 0.0 ppm
14						
15						
16			2.8/4		Coarse sands from 16-16.6' bgs	PID = 0.0 ppm
	16.6-21.3				Silty sand, SM/SP, grey to grey-brown, wet, dense, silt laminations from 16.6-16.9' bgs are dark grey in color, sands are fine-grained; trace shell fragments	PID = 0.0 ppm
17						
18						
19						
20			3.1/4			
21	21.3-21.8				Sandy gravel, GP, grey-brown, wet; gravel is well-rounded and uniform in size	Took photograph; PID = 0.0 ppm
	21.8-24.4				Silty sand, SP/SM, grey/brown, wet; silt dark grey laminations start at 22.4' bgs; trace gravel and shell fragments	PID = 0.0 ppm
22						Collect soil sample from 22.4-22.9' bgs
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-513	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	24.4-24.8		2.5/4		Silty sandy clay and gravel, GC, brown, wet	Collect geotech sample from 24-24.8' bgs
	24.8-28				Till, silty clay, CL, grey, dry, stiff; trace gravel throughout (~ 0.3' in diameter)	PID = 0.0 ppm
25						
26						
27						
28					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-514	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: SE Grassy Area Near Corporate Building/ MIP-059
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.6/4		Topsoil fill, HF, dark brown, damp	PID = 0.0 ppm
	0.5-1.4				Silty clay and gravel fill, HF, orange-brown, damp	PID = 0.0 ppm
1						
	1.4-6				Sand, SP, grey/brown to brown, damp to wet at 2.7' bgs; trace gravel, sands are medium with some coarse sand intervals	Collect geotech sample from 1.6-2.6' bgs Collect soil sample from 1.4-2.7' bgs
2						PID = 0.2 ppm ∇ water table @ ~ 2.7' bgs Collect soil sample from 2.7-3.6' bgs
3						PID = 1.8 ppm
4			3.3/4			PID = 1.7 ppm Collect geotech from 4.5-6' bgs
5						
6	6-6.4				Sand and gravel, SP/GP, brown, wet, gravel is subangular and rounded; sand is medium-grained; gravel up to 0.1' in diameter	
	6.4-14.1				Sand, SP, brown, wet, trace gravel; medium sands; trace coarse sands	
7						PID = 3.5 ppm
8			3.1/4		Coarse sands 8-8.5' bgs	PID = 8.2 ppm
9						PID = 24.5 ppm
10						PID = 28.7 ppm
11						PID = 53.5 ppm
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-514	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: SE Grassy Area Near Corporate Building/ MIP-059
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			PID = 24.7 ppm
13						
						Odor similar to "solvent"
14	14.1-18.5				Sand, SP, grey/brown, wet; fine sands; trace silt; trace shell fragments and coarse sands; some shells are fully intact	PID = 50.5 ppm
15						
16			2.8/4			PID = 67.1 ppm
17						PID = 91.0 ppm
18					Trace coarse sand, gravel, and shell fragments 17.7 to 17.73' bgs	PID = 100.8 ppm
19	18.5-20.6				Sand, SP, grey to grey-brown, wet; sands are fine- to coarse-grained; shell fragments throughout	Odor similar to "solvent" PID = 48.5 ppm
20			2.5/4			PID = 32.4 ppm
21	20.6-21.7				Sand, SP, brown, wet; sands are medium- to coarse-grained; coarse sands and gravel 21.2-21.5' bgs; clayey sands 20.3-20.4' bgs	Collect geotech sample from 20.6-21.6' bgs PID = 53.6 ppm
22	21.7-24.9				Silty sand, SP/SM, grey, wet; trace clay near bottom of interval	PID = 48.4 ppm
23						
24						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-514	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS
LOCATION: SE Grassy Area Near Corporate Building/ MIP-059
ELEVATION:
DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			1.8/2.5			Collect soil sample from 24-24.9' bgs
	24.9-25.2				Silty clay, CL/ML, brown, wet, soft	PID = 3.8 ppm
25	25.2-25.4				Silty, sandy, gravel and clay, GM/GC, grey/brown, wet; clay has high plasticity (CH), soft to very soft	PID = 2.6 ppm
	25.4-26.5				Silty clay till, CL, brown, dry, stiff	
26						
					EOB @ 26.5' bgs (refusal)	
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-515	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just North of Seahorse Drive, South of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.5/4		Silty clay fill, HF, dark brown, damp, medium (topsoil)	PID = 0.0 ppm
	0.5-2				Silty sand and gravel fill, HF, dark brown, moist, loose	
1						Collect geotech sample from 1-2' bgs PID = 0.0 ppm
2	2-2.8				Sand, SP, brown to light brown, moist, fine to medium sands, loose	Collect soil sample from 2-2.8' bgs PID = 0.0 ppm
3	2.8-6.1				Sand, SP, light tan/brown, wet, loose, medium to coarse sands; trace gravel; coarse sand layer from 5.7-5.9' bgs	PID = 0.0 ppm
4			4/4			Collect soil sample from 4-5' bgs
5						Collect geotech sample from 5-6' bgs
6	6.1-13.2				Sand, SP, grey/brown, wet, loose, medium to coarse sands; trace gravel, dark grey laminations/cross-bedding from 6.3-6.5' bgs	PID = 0.0 ppm
7						PID = 0.0 ppm
8			3.1/4			
9						PID = 0.0 ppm
10						
11						PID = 0.0 ppm
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-515	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just North of Seahorse Drive, South of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.7/4			
13	13.2-20.9				Sand, SP, grey to grey/brown, wet; fine to medium sands; trace gravel	PID = 0.0 ppm
14						
15						
16			2.7/4			PID = 0.0 ppm
17						
18						
19						PID = 0.0 ppm
20			3/4			
21	20.9-26.6				Silty sand, SM/SP, light grey/brown, wet; predominantly fine sands	PID = 0.0 ppm
22						
23						
24						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-515	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just North of Seahorse Drive, South of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			1.4/2.6			Collect soil sample from 24-24.4' bgs Collect geotech sample from 24.4-25.4' bgs PID = 0.0 ppm
25						
26						
27					EOB @ 26.6' bgs (refusal)	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-516	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Larsen Marine, Southeast Corner of IO Service Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 3/28/05 FINISH: 3/28/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.6		3.8/4		Asphalt, silty, sand and gravel fill, HF, light brown to black, dry, loose	PID = 0.0 ppm
1	1.6-4				Sandy fill, HF, light brown to dark brown, damp to wet at ~ 2.8' bgs; sand is medium-grained	Collect geotech sample from 1.6-2.6' bgs Collect soil sample from 2.6-2.8' bgs PID = 0.0 ppm
2						
3						
4	4-10.3		Liner stuck, could not determine recovery		Sand, SP, grey to light brown, wet, trace gravel; sand is medium-grained, trace gravel is subrounded to well-rounded	Collect soil sample from 4-6' bgs PID = 0.0 ppm
5						
6						
7						
8			3.5/4			PID = 0.0 ppm Collect geotech sample from 8.5-10' bgs
9						
10	10.3-14				Coarse sands from 10-10.3' bgs Sand, SP, grey to grey/brown, wet; fine to medium-grained sands	PID = 0.0 ppm
11						
12						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-516	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Larsen Marine, Southeast Corner of IO Service Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 3/28/05 FINISH: 3/28/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3.1/4			PID = 0.0 ppm
13						
14	14-16.2				Sand, SP, dark grey, wet; medium sands, trace coarse sands, trace gravel	"Organic" odor PID = 0.0 ppm
15						
16	16.2-25.3		2.8/4		Silty sand, SP/SM, dark grey, wet; trace gravel; sand is medium to fine-grained, dense	PID = 0.0 ppm
17						
18						PID = 0.0 ppm
19						
20			2.7/4			PID = 1.6 ppm
21						PID = 3.6 ppm
22						PID = 3.2 ppm
23						PID = 3.9 ppm
24						

CH2MHILL

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-516	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Larsen Marine, Southeast Corner of IO Service Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 3/28/05 FINISH: 3/28/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			PID = 1.3 ppm Collect soil sample from 24-24.3' bgs Collect geotech sample from 24.3-35.3' bgs
25	25.3-28				Silty clay till, CL, light brown, dry, stiff	
26						
27						
28					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-517	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Outside SW Corner of Hallway to HAZMAT Storage Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 0.6' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.1/4		Sandy, silt and gravel fill, HF, light tan to grey, damp	PID = 1.3 ppm; collect soil sample from 0-0.6' bgs; ∇ water table @ ~ 0.6' bgs
	0.6-1				Sand and gravel fill, HF, black, wet; possible foundry sand	PID = 0.0 ppm
1	1-1.4				Sand and gravel fill, HF, tan to grey, wet	PID = 0.0 ppm
	1.4-4				Sand, SP, brown to grey, wet; medium sands	Collect geotech sample from 1.5-2.5' bgs Collect soil sample from 2.5-3.1' bgs
2						
3						
4	4-5.1		Could not determine, liner stuck in sampling tube		Sand and gravel, SP, brown to grey-brown, wet; medium to coarse sands; gravel is flat and well-rounded; trace silt	"Sheen" on tube when pulled up from subsurface Odor similar to diesel fuel; PID = 0.0 ppm
5	5.1-10.4				Sand, SP, brown to grey/brown, wet; trace gravel; fine to coarse sands, but predominantly medium	PID = 0.0 ppm
6						
7						
8			3.1/4			
9						
10					Coarse sands from 10.2-10.4' bgs	
	10.4-14.3				Sand, SP, brown to grey/brown, wet; trace gravel, fine to medium sands; trace coarse sands; (sand with gravel from 10.8-10.9' bgs	
11						
12						

PROJECT NUMBER	WELL NUMBER
186305.FI.01	MW-517 SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Outside SW Corner of Hallway to HAZMAT Storage Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 0.6' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4		Coarse sands from 12.1-12.3' bgs and 13.3-14.3' bgs	PID = 0.0 ppm
13						
14	14.3-20				Sand, SP, brown, wet; very fine to medium sands; trace silt	
15						
16			1.1/4			Collect geotech sample from 16.1-17.1' bgs PID = 0.0 ppm
17						
18					Refusal at ~ 18' bgs; offset ~ 5' to southeast	Wood in sampler shoe; will offset to continue sampling
19						
20	20-20.3 20.3-20.7 20.7-22		1.9/2		Silty sand and gravel, SP/GM, brown/grey, wet Silty, sandy, gravel, GM, brown/grey, wet Silty clay till, CL, brown, dry; trace gravel from 20.7-21' bgs	Collect soil sample from 20-20.7' bgs PID = 0.0 ppm
21						
22					EOB @ 22' bgs (refusal)	
23						
24						

Attachment 2

Monitoring Well Completion Diagrams

PROJECT NUMBER	WELL NUMBER
186305.FI.01	MW-500S — SHEET 1 OF 1

CH2MHILL

WELL COMPLETION DIAGRAM

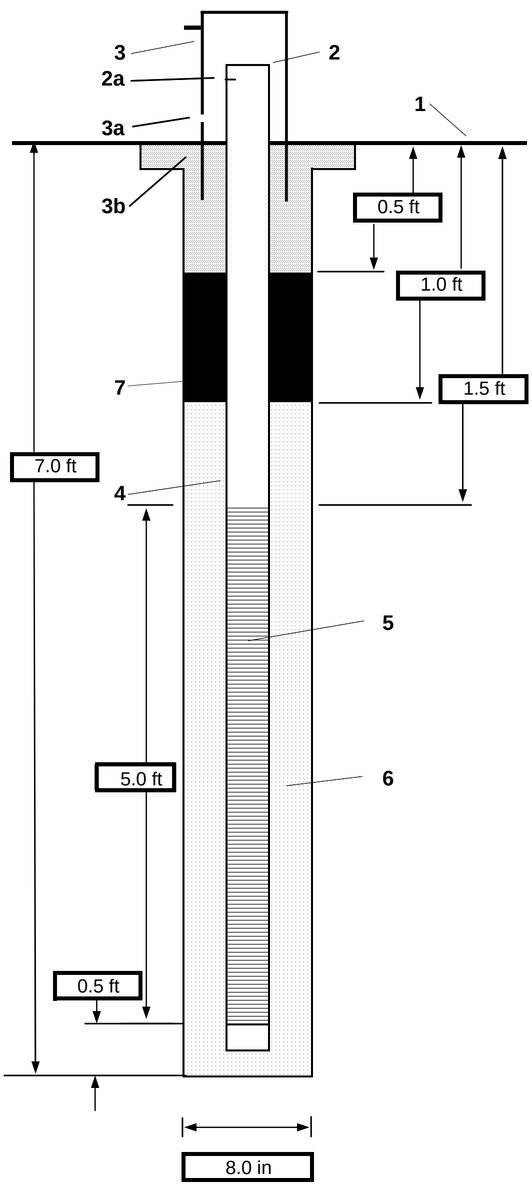
PROJECT : OMC Plant 2

LOCATION : South of northern access road. Replacement wells for well nest MW-4A, MW-4B, MW-4C.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.64 ft btoc START : 3/28/2005 END : 3/28/2005 LOGGER : PR, CL



1- Ground elevation at well: 583.29

2- Top of casing elevation: 586.18
   a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
   a) weep hole?
   b) concrete pad dimensions: ~0.5 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC 0.010 slot

6- Type screen filter: 10/20 sand
   a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
   a) Quantity used

8- Grout
   a) Grout mix used: None
   b) Method of placement
   c) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-500D	SHEET 1 OF 1

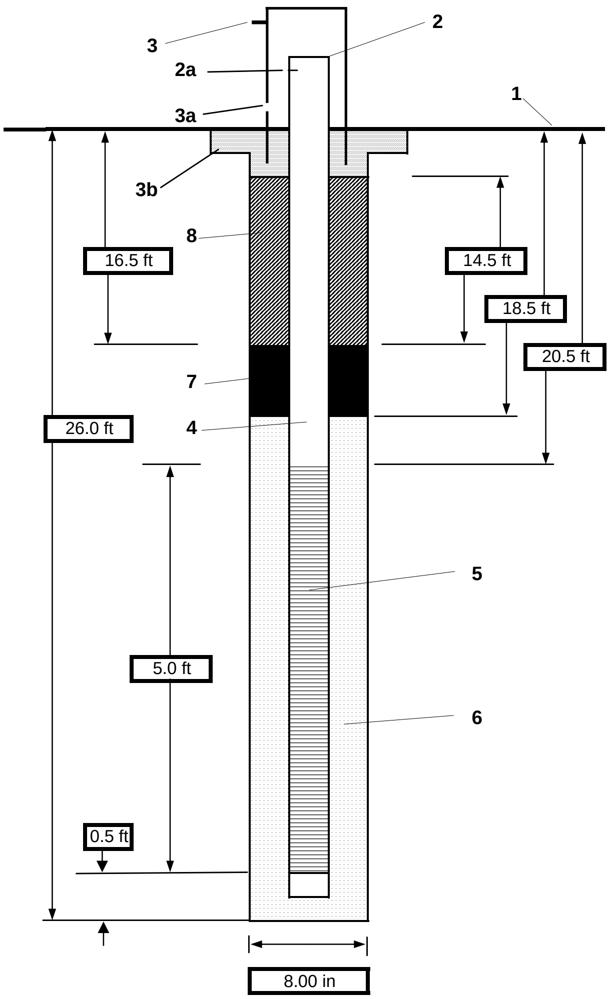
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : South of northern access road. Replacement wells for well nest MW-4A, MW-4B, MW-4C.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.72 ft btoc START : 3/28/2005 END : 3/28/2005 LOGGER : PR, CL



1- Ground elevation at well: 583.65

2- Top of casing elevation: 586.19
   a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
   a) weep hole?
   b) concrete pad dimensions: ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
   0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
   1 ft of 100 mesh sand above 10/20 sand.
   a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
   a) Quantity used

8- Grout
   a) Grout mix used: High solids bentonite grout
   b) Method of placement: Tremie
   c) Vol. of surface casing grout
   d) Vol. of well casing grout

Development method: Pumped

Development time

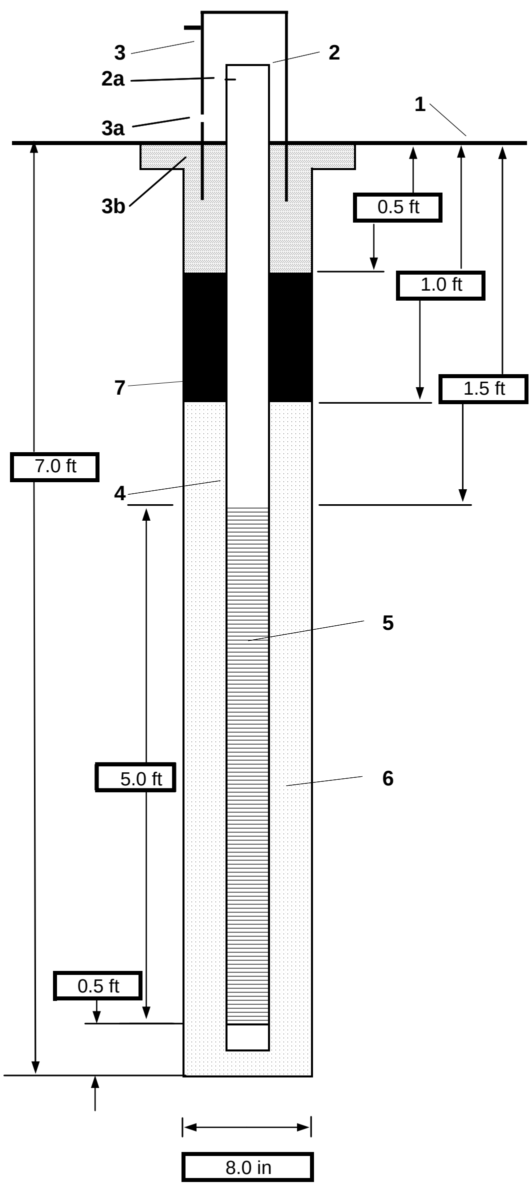
Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-501S	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2
LOCATION : Northeast corner of site. Replacement wells for well nest MW-2A, MW-2B, MW-2C.
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 5.15 ft btoc
START : 4/4/2005
END : 4/4/2005
LOGGER : PR, CL



1- Ground elevation at well: 583.36

2- Top of casing elevation: 585.83
a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
a) weep hole?
b) concrete pad dimensions: ~0.5 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand
a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used: None
b) Method of placement
c) Vol. of well casing grout

Development method: Pumped

Development time

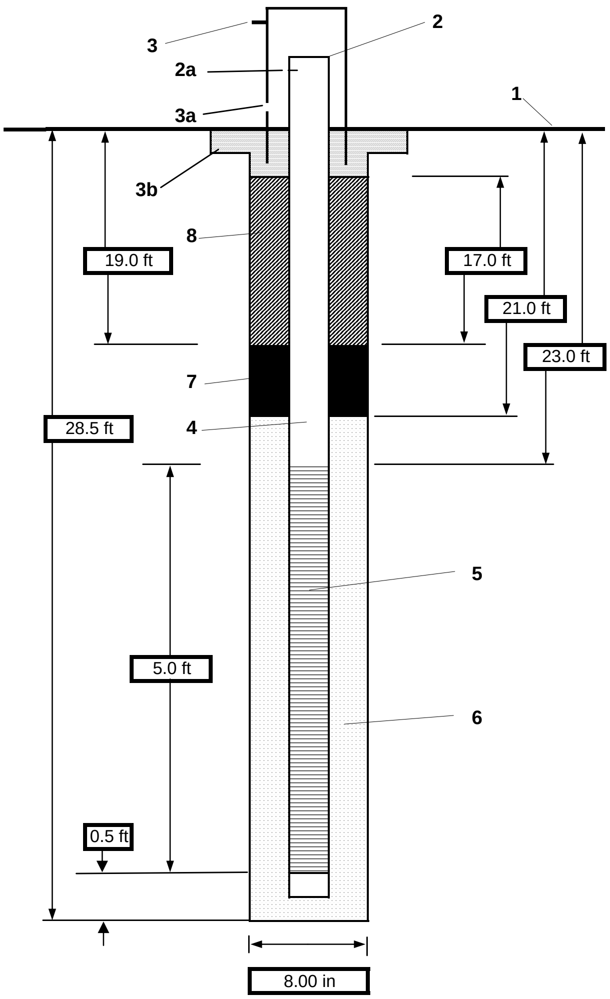
Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-501D	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2
LOCATION : Northeast corner of site. Replacement wells for well nest MW-2A, MW-2B, MW-2C.
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 5.10 ft btoc
START : 4/4/2005
END : 4/4/2005
LOGGER : PR, CL



1- Ground elevation at well: 583.29

2- Top of casing elevation: 585.76
a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
a) weep hole?
b) concrete pad dimensions: ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used: High solids bentonite grout
b) Method of placement: Tremie
c) Vol. of surface casing grout
d) Vol. of well casing grout

Development method: Pumped

Development time

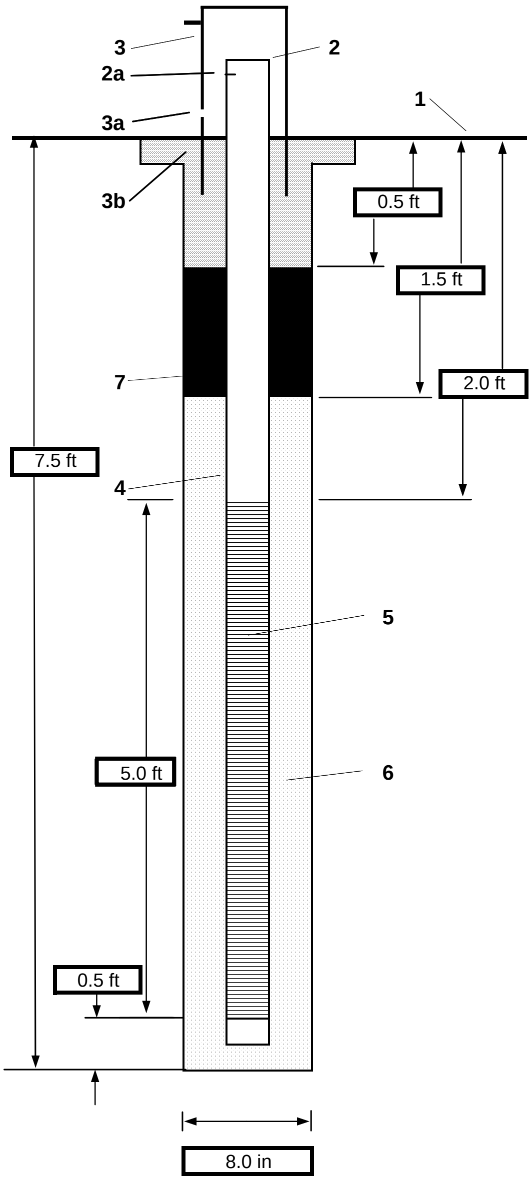
Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-502S	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Outside building near northwest loading dock.
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 4.61 ft btoc START : 3/17/2005 END : 3/17/2005 LOGGER : PR, CL



1- Ground elevation at well	584.93
2- Top of casing elevation	587.44
a) vent hole?	
3- Wellhead protection cover type	Locking aluminum well cover
a) weep hole?	
b) concrete pad dimensions	~0.5 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand
a) Quantity used	
7- Type of seal	3/8-inch bentonite chips
a) Quantity used	
8- Grout	
a) Grout mix used	None
b) Method of placement	
c) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-502D	SHEET 1	OF 1

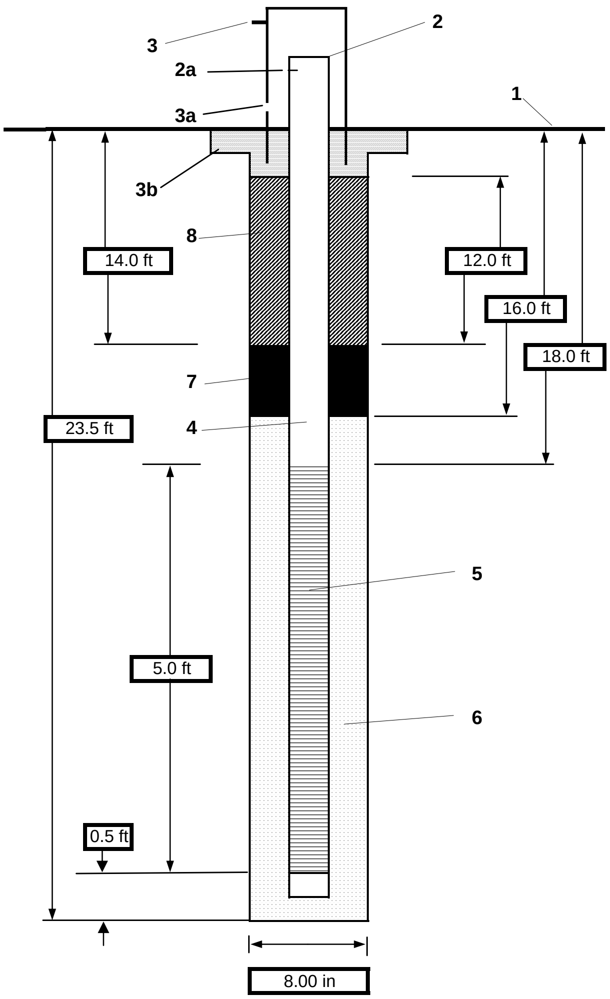
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Outside building near northwest loading dock.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 4.50 ft btoc START : 3/16/2005 END : 3/16/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.84

2- Top of casing elevation: 587.33
 a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
 a) weep hole?
 b) concrete pad dimensions: ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
1 ft of 100 mesh sand above 10/20 sand.
 a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
 a) Quantity used

8- Grout
 a) Grout mix used: High solids bentonite grout
 b) Method of placement: Tremie
 c) Vol. of surface casing grout
 d) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-503S	SHEET 1 OF 1

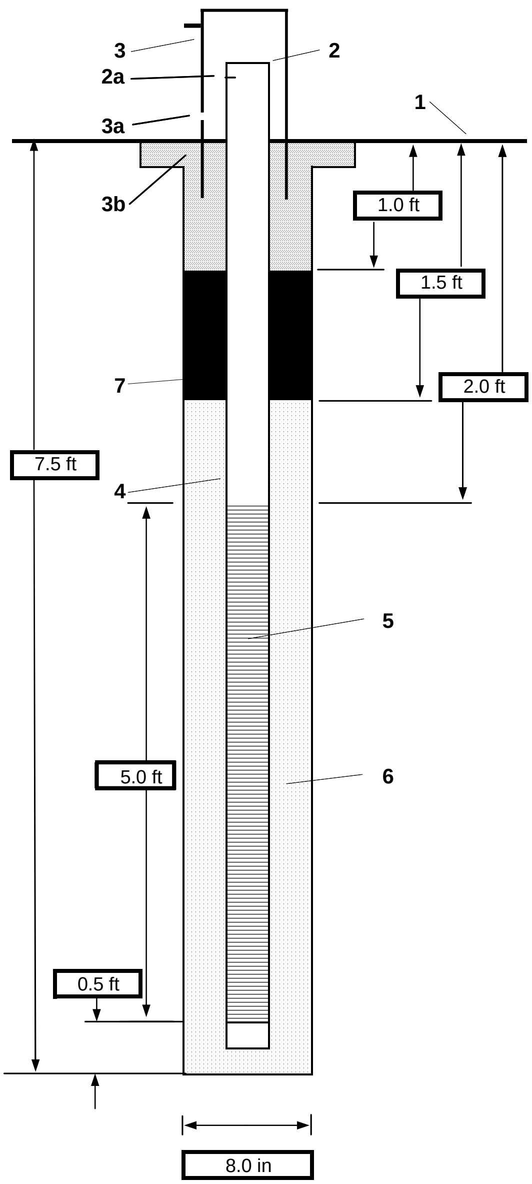
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : East of chip wringer room.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 2.25 ft btoc START : 3/16/2005 END : 3/16/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.91

2- Top of casing elevation: 584.66
  a) vent hole?

3- Wellhead protection cover type: Flush mount
  a) weep hole?
  b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand
  a) Quantity used

7- Type of seal: 3/8-inch bentonite chips overlying
  a) Quantity used: 0.5 feet of 1/4-inch bentonite pellets

8- Grout
  a) Grout mix used: None
  b) Method of placement
  c) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-503D	SHEET 1	OF 1

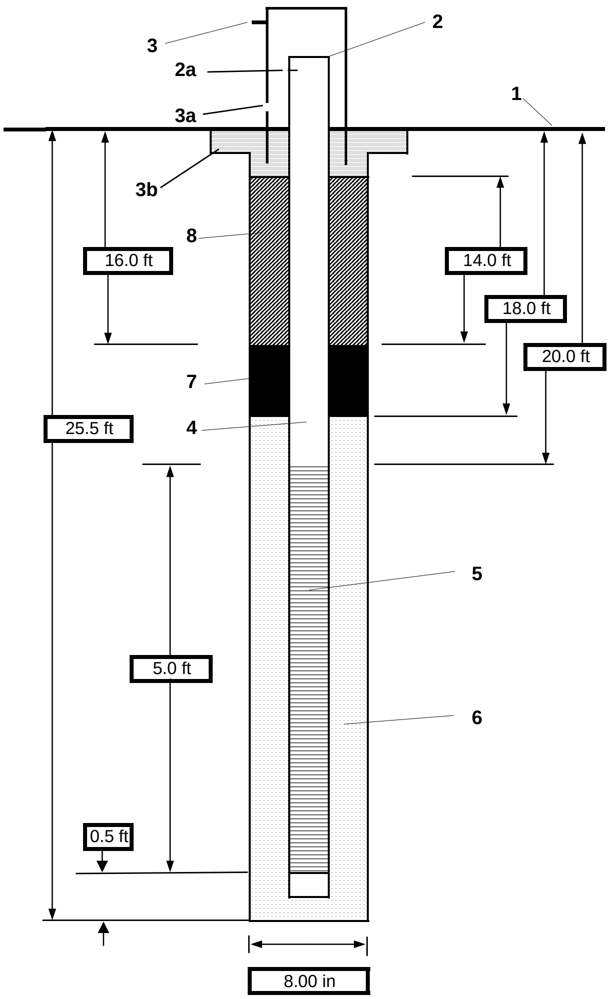
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : East of chip wringer room.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 2.20 ft btoc START : 3/16/2005 END : 3/16/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.86

2- Top of casing elevation: 584.63
   a) vent hole?

3- Wellhead protection cover type: Flush mount
   a) weep hole?
   b) concrete pad dimensions: ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
   0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
   1 ft of 100 mesh sand above 10/20 sand.
   a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
   a) Quantity used

8- Grout
   a) Grout mix used: High solids bentonite grout
   b) Method of placement: Tremie
   c) Vol. of surface casing grout
   d) Vol. of well casing grout

Development method: Pumped

Development time

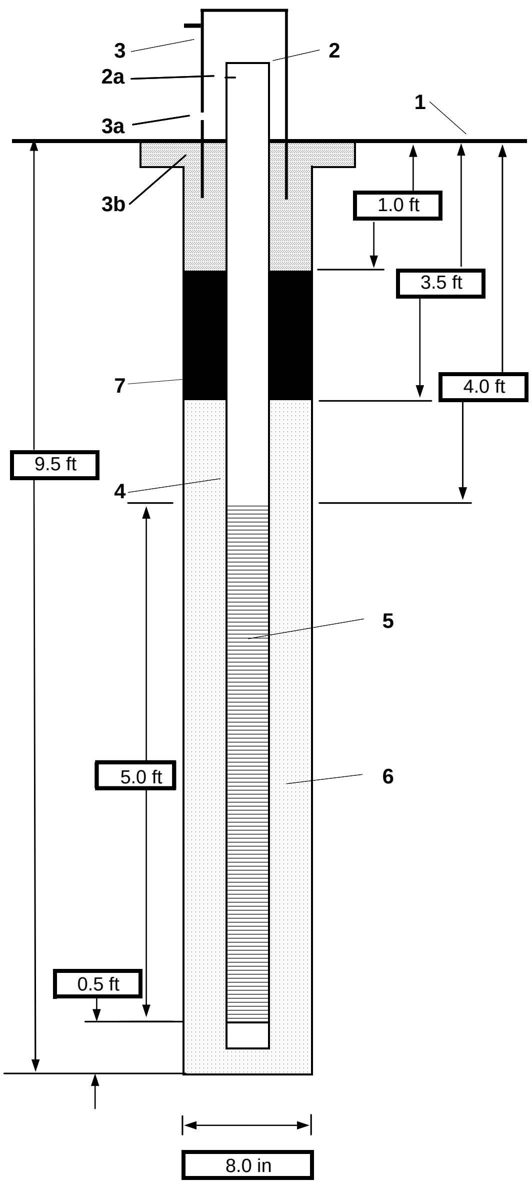
Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-504S	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant near northeastern loading dock of Old Die Cast Area
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 6.02 ft btoc START : 3/18/2005 END : 3/18/2005 LOGGER : PR, CL



1-	Ground elevation at well	588.42
2-	Top of casing elevation	588.23
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand
	a) Quantity used	
7-	Type of seal	3/8-inch bentonite chips overlying
	a) Quantity used	0.5 feet of 1/4-inch bentonite pellets
8-	Grout	
	a) Grout mix used	None
	b) Method of placement	
	c) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-504D	SHEET 1	OF 1

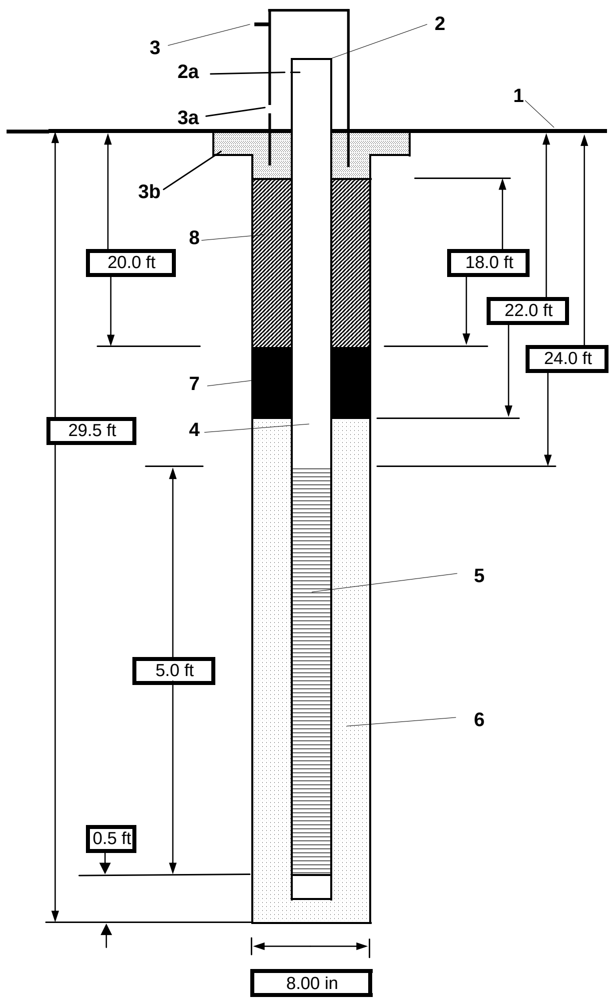
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant near northeastern loading dock of Old Die Cast Area

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 5.93 ft btoc START : 3/18/2005 END : 3/18/2005 LOGGER : PR, CL



1- Ground elevation at well	588.42
2- Top of casing elevation	588.16
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~2 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand to 1 ft above screen. 1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used	
7- Type of seal	Bentonite (1/4-inch pellets)
a) Quantity used	
8- Grout	
a) Grout mix used	High solids bentonite grout
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-505S	SHEET 1	OF 1

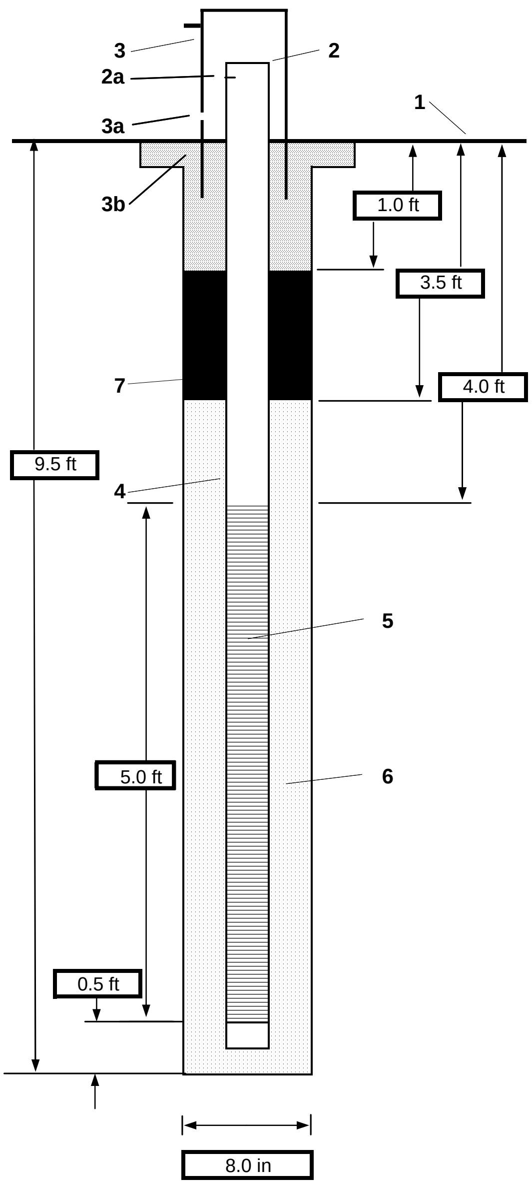
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, west of production offices near transformer.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 5.51 ft btoc START : 3/18/2005 END : 3/18/2005 LOGGER : PR, CL



1- Ground elevation at well	588.36
2- Top of casing elevation	588.13
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand
a) Quantity used	
7- Type of seal	3/8-inch bentonite chips overlying
a) Quantity used	0.5 feet of 1/4-inch bentonite pellets
8- Grout	
a) Grout mix used	None
b) Method of placement	
c) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	**MW-505D**	SHEET 1 OF 1

CH2MHILL

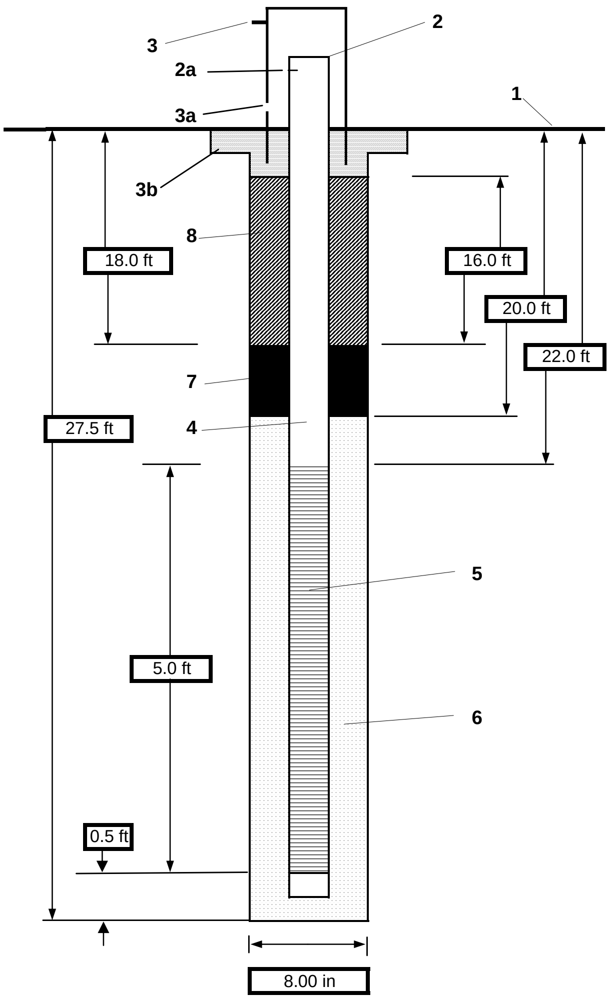
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, west of production offices near transformer.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 5.31 ft btoc START : 3/25/2005 END : 3/25/2005 LOGGER : PR, CL



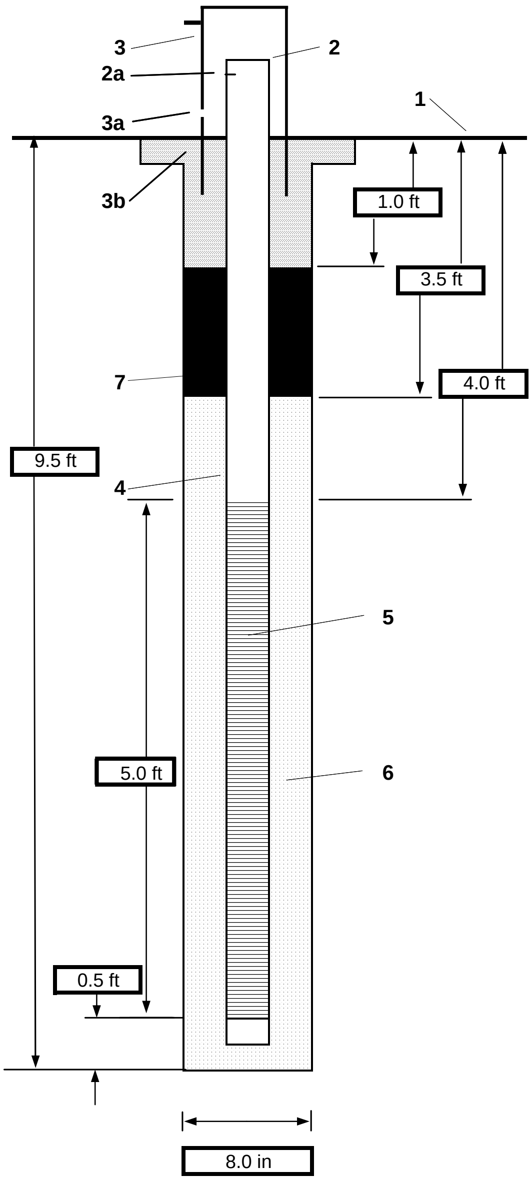
1- Ground elevation at well	588.36
2- Top of casing elevation	587.97
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~2 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand to 1 ft above screen. 1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used	
7- Type of seal	Bentonite (1/4-inch pellets)
a) Quantity used	
8- Grout	
a) Grout mix used	High solids bentonite grout
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-506S	SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, in hallway just north of Metal Plating Room.
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 5.78 ft btoc START : 3/18/2005 END : 3/18/2005 LOGGER : PR, CL



1- Ground elevation at well	588.42
2- Top of casing elevation	588.18
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand
a) Quantity used	
7- Type of seal	3/8-inch bentonite chips overlying
a) Quantity used	0.5 feet of 1/4-inch bentonite pellets
8- Grout	
a) Grout mix used	None
b) Method of placement	
c) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-506D	SHEET 1	OF 1

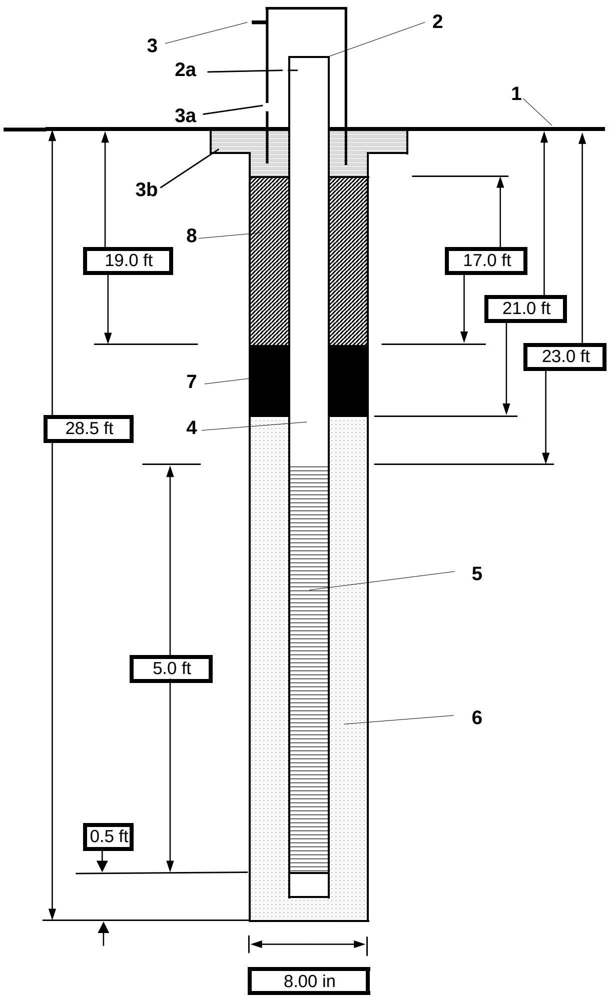
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, in hallway just north of Metal Plating Room.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 5.77 ft btoc START : 3/25/2005 END : 3/25/2005 LOGGER : PR, CL



1- Ground elevation at well: 588.42

2- Top of casing elevation: 588.19
   a) vent hole?

3- Wellhead protection cover type: Flush mount
   a) weep hole?
   b) concrete pad dimensions: ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC 0.010 slot

6- Type screen filter: 10/20 sand to 2 ft above screen.
   a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
   a) Quantity used

8- Grout
   a) Grout mix used: High solids bentonite grout
   b) Method of placement: Tremie
   c) Vol. of surface casing grout
   d) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-507S	SHEET 1	OF 1

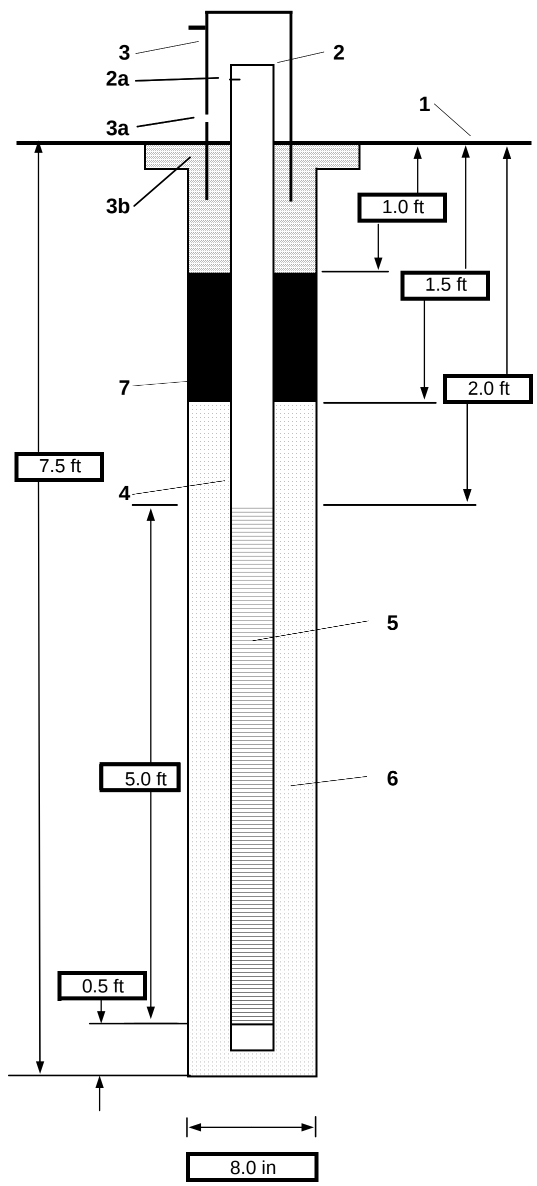
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 — LOCATION : North of Trim Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 4.32 ft btoc — START : 3/15/2005 — END : 3/15/2005 — LOGGER : PR, CL



1- Ground elevation at well: 583.88

2- Top of casing elevation: 586.32
a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
a) weep hole?
b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand
a) Quantity used

7- Type of seal: 3/8-inch bentonite chips
a) Quantity used

8- Grout
a) Grout mix used: None
b) Method of placement
c) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-507D	SHEET 1	OF 1

CH2MHILL

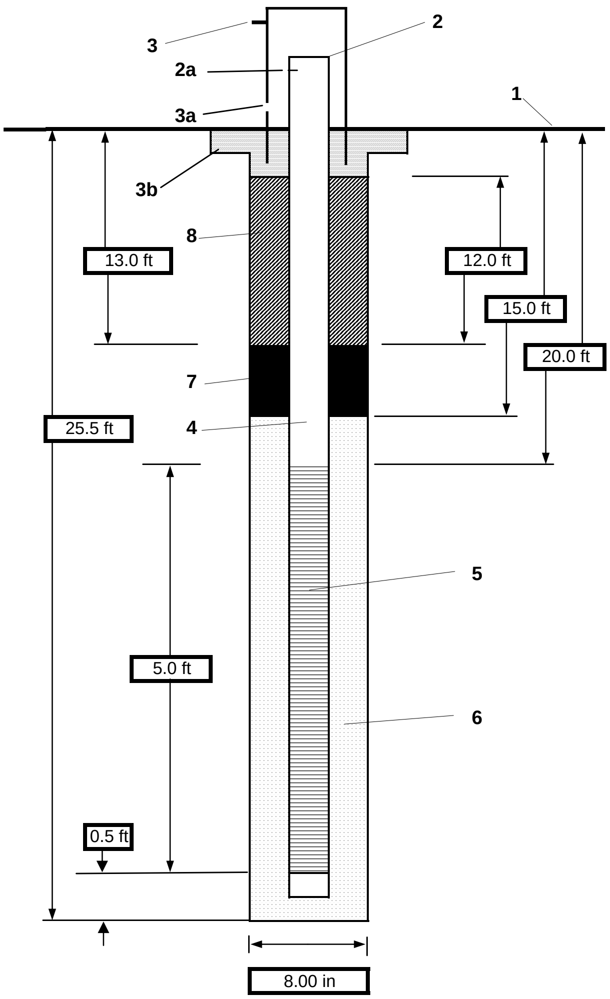
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : North of Trim Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 4.38 ft btoc START : 3/15/2005 END : 3/15/2005 LOGGER : PR, CL



1- Ground elevation at well: 583.93

2- Top of casing elevation: 586.34
a) vent hole?

3- Wellhead protection cover type: Locking aluminum well cover
a) weep hole?
b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand to 5 ft above screen.
a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used: High solids bentonite grout
b) Method of placement: Tremie
c) Vol. of surface casing grout
d) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-508S	SHEET 1	OF 1

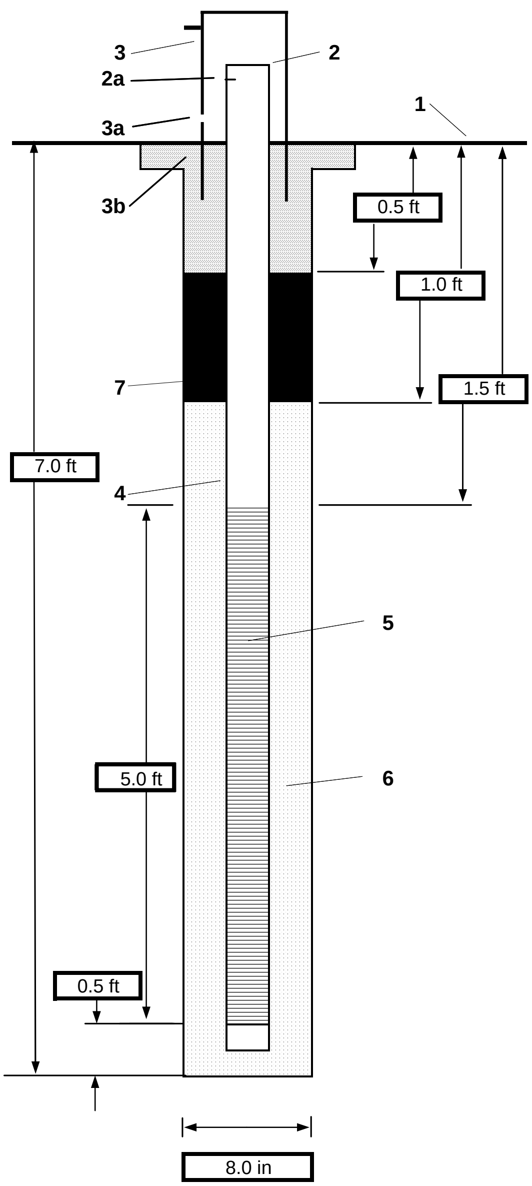
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Along eastern access road.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.51 ft btoc START : 3/22/2005 END : 3/22/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.93

2- Top of casing elevation: 584.67
   a) vent hole?

3- Wellhead protection cover type: Flush mount
   a) weep hole?
   b) concrete pad dimensions: ~0.5 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
   0.010 slot

6- Type screen filter: 10/20 sand
   a) Quantity used

7- Type of seal: 3/8-inch bentonite chips
   a) Quantity used

8- Grout
   a) Grout mix used: None
   b) Method of placement
   c) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-508D	SHEET 1	OF 1

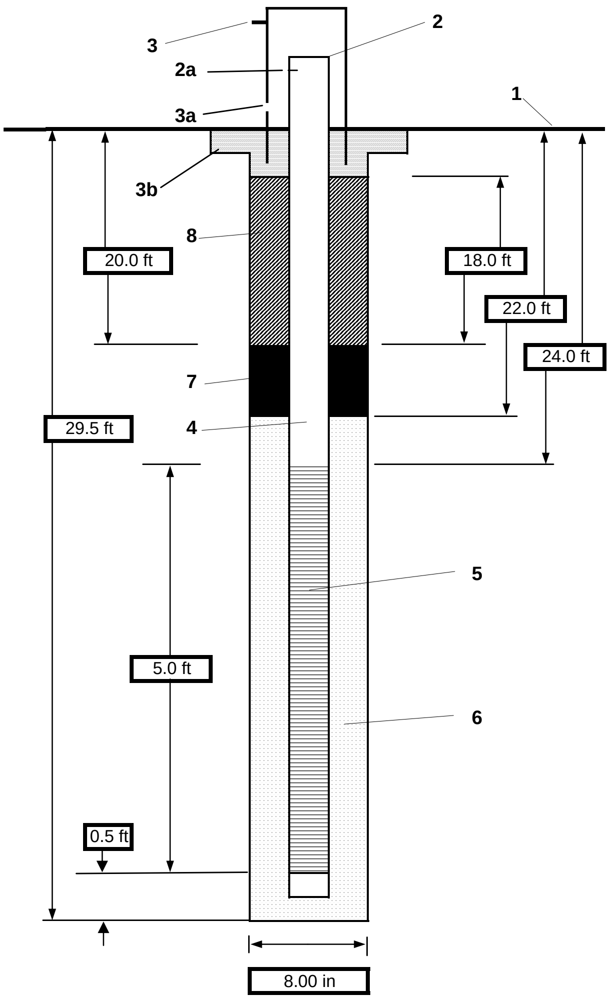
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Along eastern access road.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.51 ft btoc START : 3/22/2005 END : 3/22/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.96

2- Top of casing elevation: 584.68
  a) vent hole?

3- Wellhead protection cover type: Flush mount
  a) weep hole?
  b) concrete pad dimensions: ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
  0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
  1 ft of 100 mesh sand above 10/20 sand.
  a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
  a) Quantity used

8- Grout
  a) Grout mix used: High solids bentonite grout
  b) Method of placement: Tremie
  c) Vol. of surface casing grout
  d) Vol. of well casing grout

Development method: Pumped

Development time

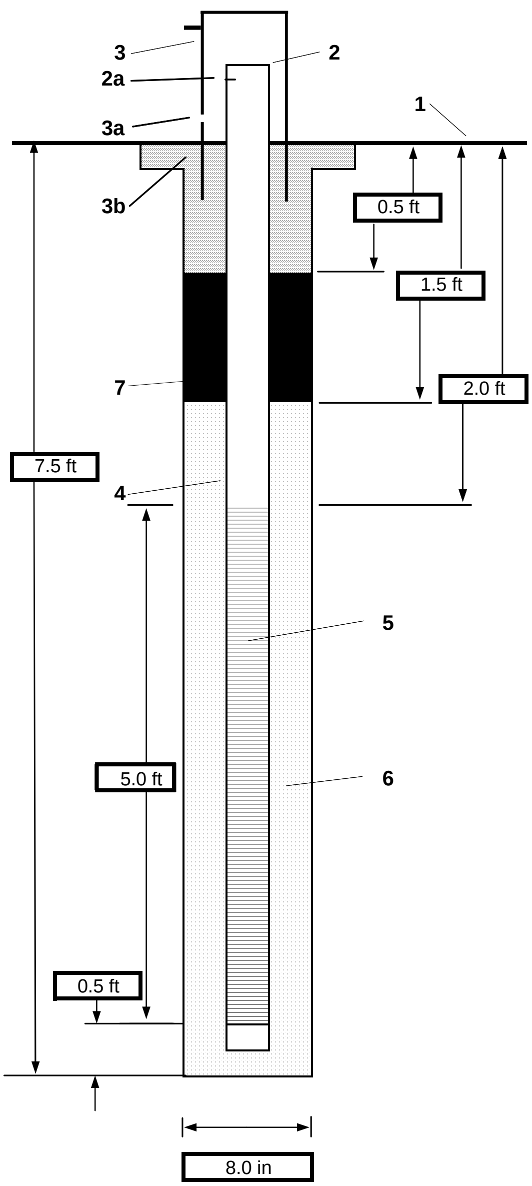
Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-509S	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Along western access road, west of boiler room
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 0.90 ft btoc START : 3/22/2005 END : 3/22/2005 LOGGER : PR, CL



1- Ground elevation at well	584.42
2- Top of casing elevation	584.22
a) vent hole?	
3- Wellhead protection cover type	Locking aluminum well cover
a) weep hole?	
b) concrete pad dimensions	~0.5 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand
a) Quantity used	
7- Type of seal	Bentonite (1/4-inch pellets)
a) Quantity used	
8- Grout	
a) Grout mix used	None
b) Method of placement	
c) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-509D	SHEET 1 OF 1

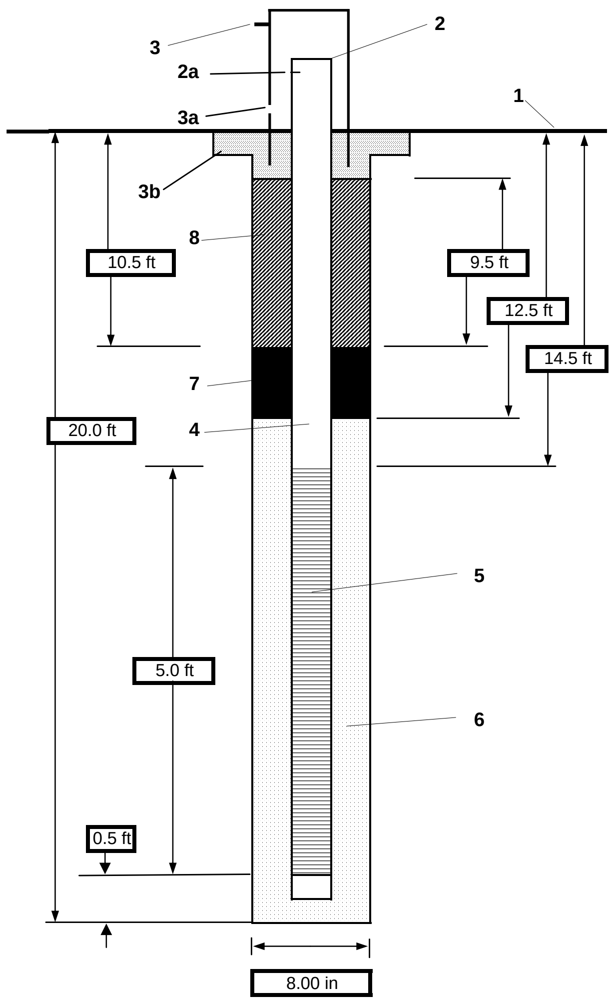
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Along western access road, west of boiler room

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 0.89 ft btoc START : 3/22/2005 END : 3/22/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.41

2- Top of casing elevation: 584.19
a) vent hole?

3- Wellhead protection cover type: Flush mount
a) weep hole?
b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used: High solids bentonite grout
b) Method of placement: Tremie
c) Vol. of surface casing grout
d) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-510S	SHEET 1 OF 1

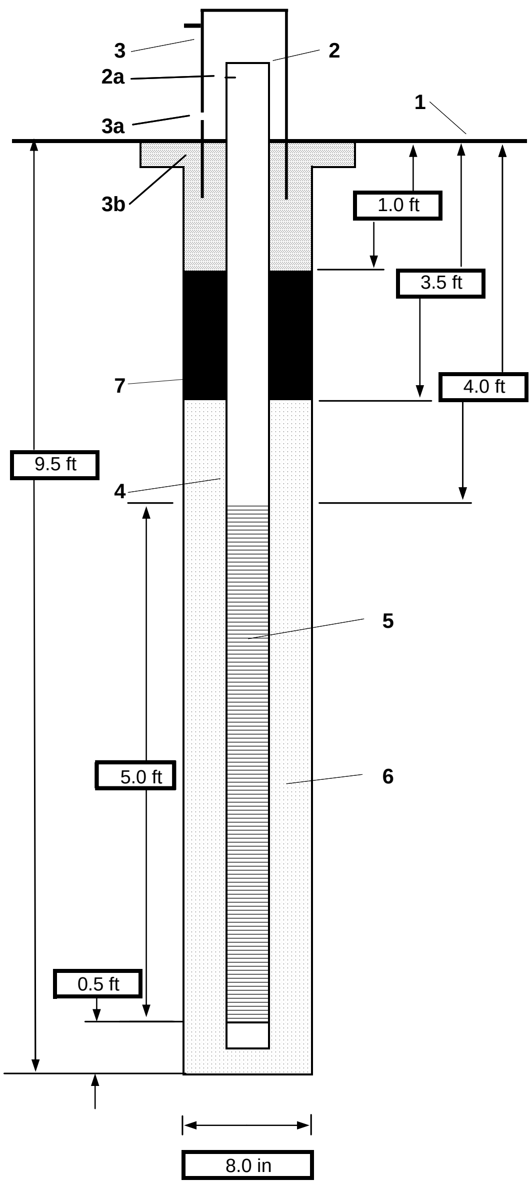
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, north of nurse's station.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 5.81 ft btoc START : 3/18/2005 END : 3/18/2005 LOGGER : PR, CL



1- Ground elevation at well: 588.33

2- Top of casing elevation: 588.05

a) vent hole?

3- Wellhead protection cover type: Flush mount

a) weep hole?

b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC 0.010 slot

6- Type screen filter: 10/20 sand

a) Quantity used

7- Type of seal: 3/8-inch bentonite chips overlying

a) Quantity used: 0.5 feet of 1/4-inch bentonite pellets

8- Grout

a) Grout mix used: None

b) Method of placement

c) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER
186305.FI.01	MW-510D SHEET 1 OF 1

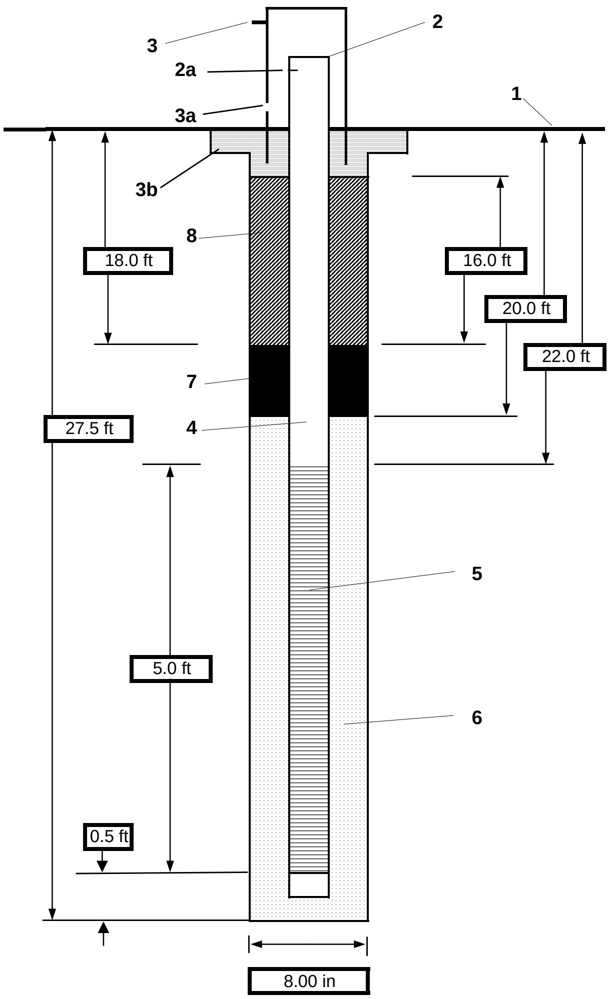
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, north of nurse's station.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 5.81 ft btoc START : 4/4/2005 END : 4/4/2005 LOGGER : PR, CL



1- Ground elevation at well 588.33

2- Top of casing elevation 588.07
a) vent hole?

3- Wellhead protection cover type Flush mount
a) weep hole?
b) concrete pad dimensions ~2 ft x 2 ft x 2 ft

4- Dia./type of well casing 2 in diameter schedule 40 PVC

5- Type/slot size of screen 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter 10/20 sand to 1 ft above screen.
1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used

7- Type of seal Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used High solids bentonite grout
b) Method of placement Tremie
c) Vol. of surface casing grout
d) Vol. of well casing grout

Development method Pumped

Development time

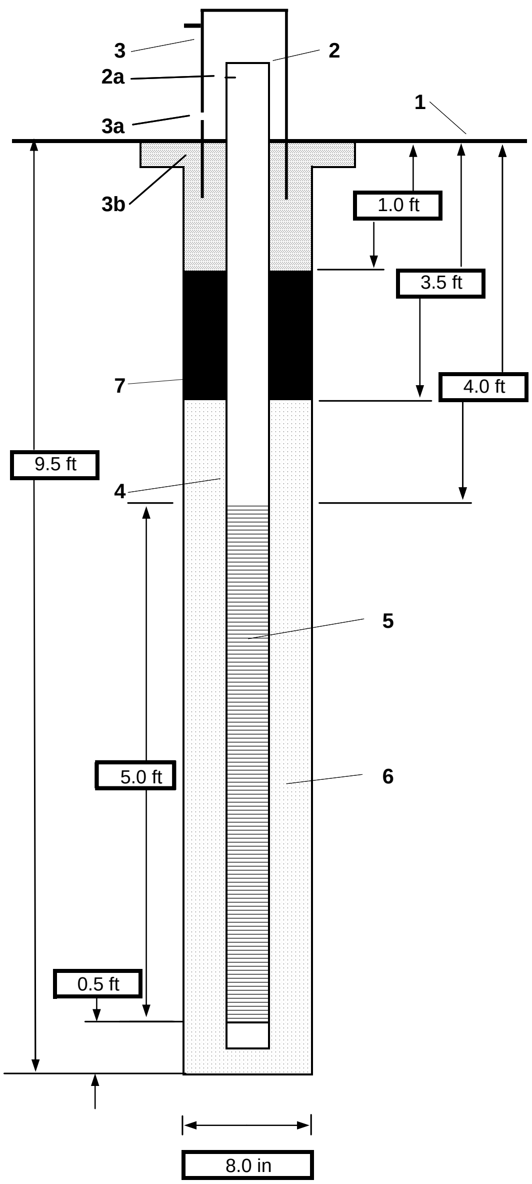
Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-511S	SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, just west of Trim Building
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 6.27 ft btoc START : 3/18/2005 END : 3/18/2005 LOGGER : PR, CL



1- Ground elevation at well	588.41
2- Top of casing elevation	588.15
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand
a) Quantity used	
7- Type of seal	3/8-inch bentonite chips overlying
a) Quantity used	0.5 feet of 1/4-inch bentonite pellets
8- Grout	
a) Grout mix used	None
b) Method of placement	
c) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-511D	SHEET 1	OF 1

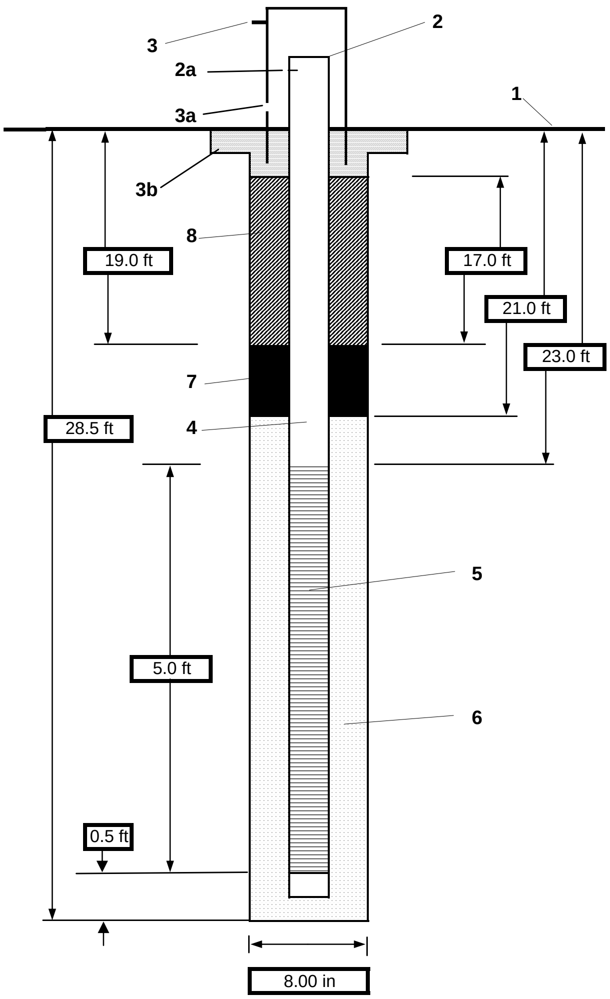
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Inside plant, just west of Trim Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 6.33 ft btoc START : 3/25/2005 END : 3/25/2005 LOGGER : PR, CL



1-	Ground elevation at well	588.41
2-	Top of casing elevation	588.22
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~2 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand to 1 ft above screen. 1 ft of 100 mesh sand above 10/20 sand.
	a) Quantity used	
7-	Type of seal	Bentonite (1/4-inch pellets)
	a) Quantity used	
8-	Grout	
	a) Grout mix used	High solids bentonite grout
	b) Method of placement	Tremie
	c) Vol. of surface casing grout	
	d) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER
186305.FI.01	MW-512S SHEET 1 OF 1

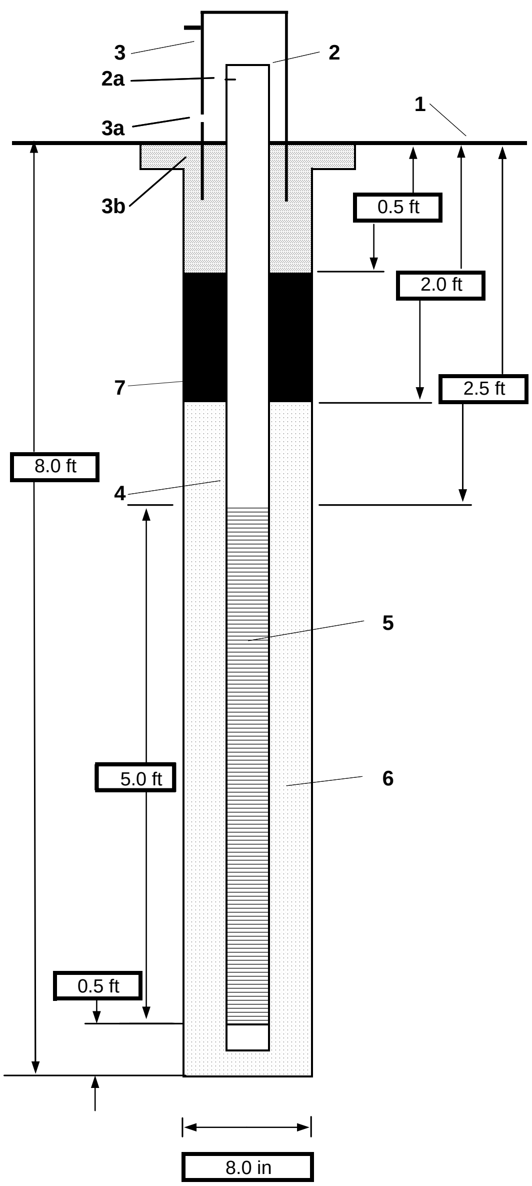
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : South of Triax Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 2.80 ft btoc START : 3/31/2005 END : 3/31/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.83

2- Top of casing elevation: 584.56
a) vent hole?

3- Wellhead protection cover type: Flush mount
a) weep hole?
b) concrete pad dimensions: ~0.5 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand
a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used: None
b) Method of placement
c) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments: 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER
186305.FI.01	MW-512D SHEET 1 OF 1

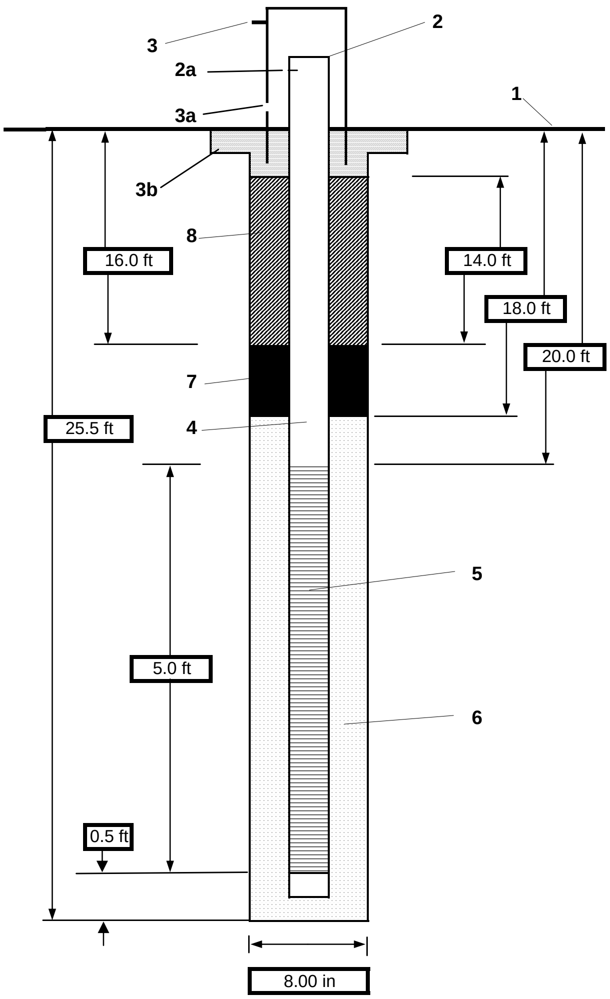
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2   LOCATION : South of Triax Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 2.86 ft btoc   START : 3/31/2005   END : 3/31/2005   LOGGER : PR, CL



1- Ground elevation at well	584.86
2- Top of casing elevation	584.60
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~2 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand to 1 ft above screen. 1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used	
7- Type of seal	Bentonite (1/4-inch pellets)
a) Quantity used	
8- Grout	
a) Grout mix used	High solids bentonite grout
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-513S	SHEET 1	OF 1

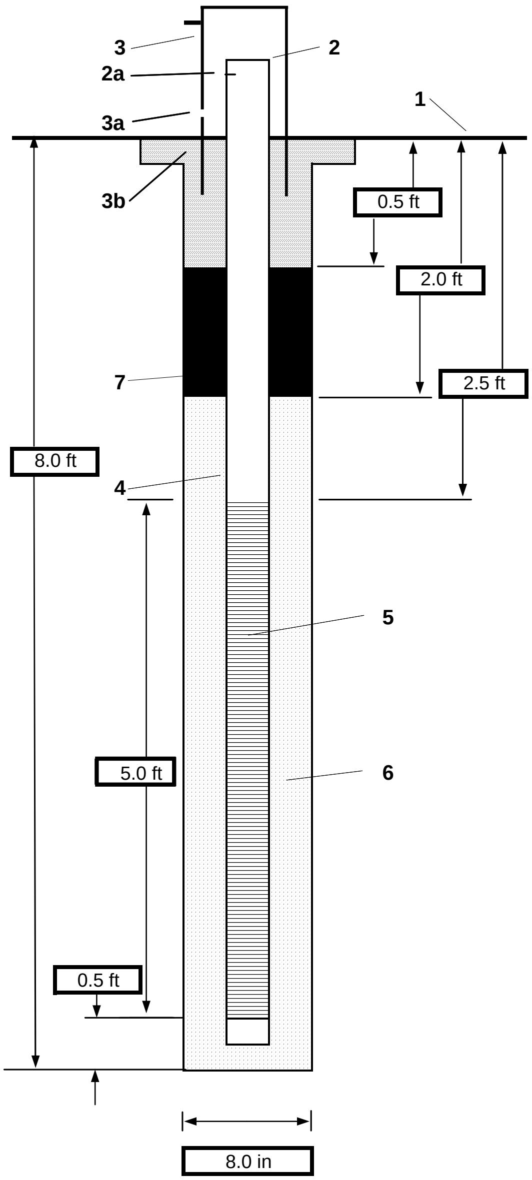
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : West of Corporate Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.49 ft btoc START : 3/30/2005 END : 3/30/2005 LOGGER : PR, CL



1-	Ground elevation at well	585.44
2-	Top of casing elevation	585.23
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~0.5 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand
	a) Quantity used	
7-	Type of seal	Bentonite (1/4-inch pellets)
	a) Quantity used	
8-	Grout	
	a) Grout mix used	None
	b) Method of placement	
	c) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-513D	SHEET 1	OF 1

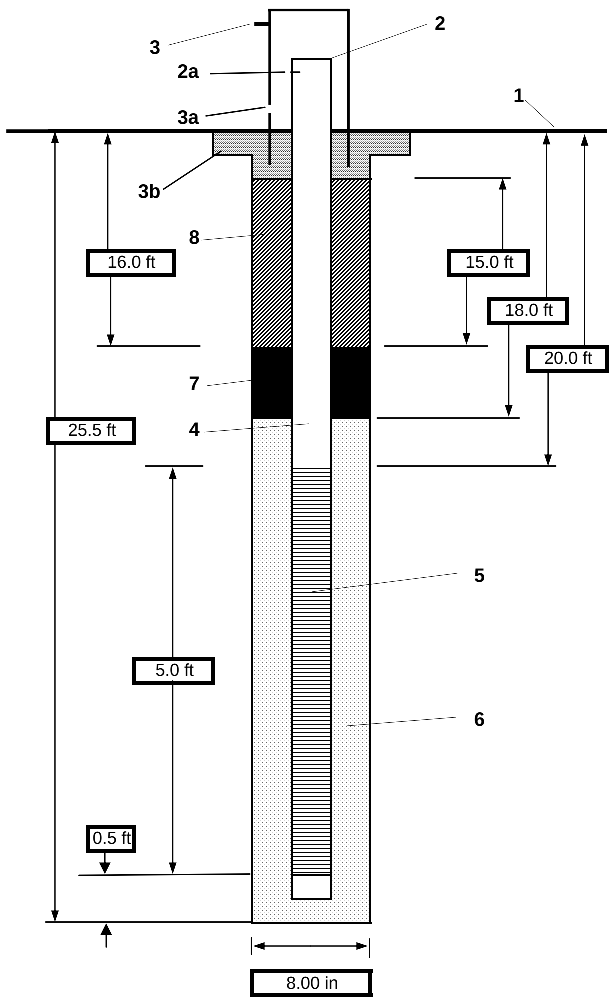
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : West of Corporate Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.51 ft btoc START : 3/30/2005 END : 3/30/2005 LOGGER : PR, CL



1-	Ground elevation at well	585.54
2-	Top of casing elevation	585.29
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand to 1 ft above screen. 1 ft of 100 mesh sand above 10/20 sand.
	a) Quantity used	
7-	Type of seal	Bentonite (1/4-inch pellets)
	a) Quantity used	
8-	Grout	
	a) Grout mix used	High solids bentonite grout
	b) Method of placement	Tremie
	c) Vol. of surface casing grout	
	d) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-514S	SHEET 1	OF 1

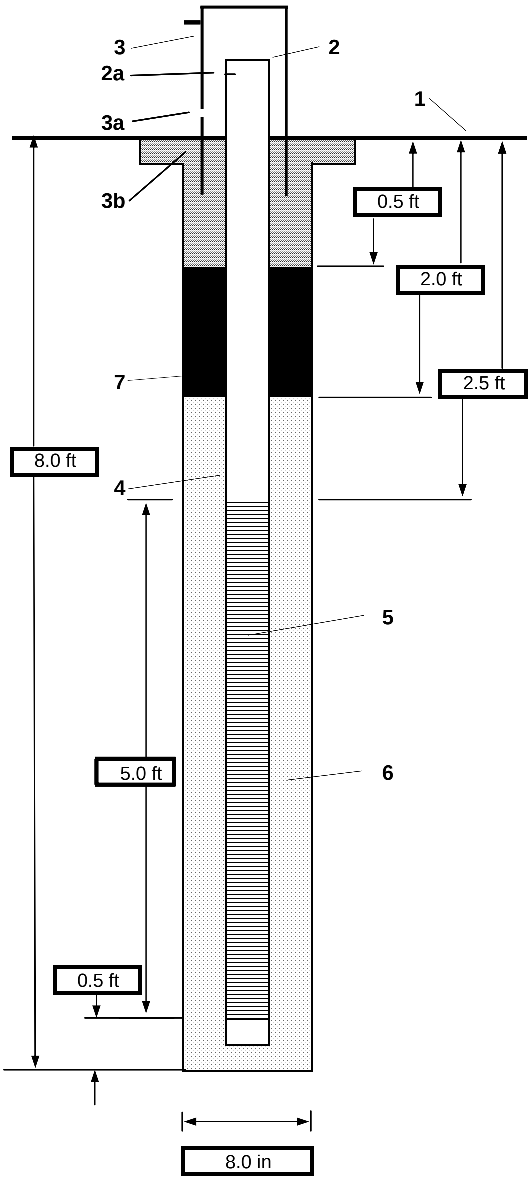
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : East of Corporate Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.22 ft btoc START : 3/30/2005 END : 3/30/2005 LOGGER : PR, CL



1-	Ground elevation at well	584.89
2-	Top of casing elevation	584.70
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~0.5 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand
	a) Quantity used	
7-	Type of seal	Bentonite (1/4-inch pellets)
	a) Quantity used	
8-	Grout	
	a) Grout mix used	None
	b) Method of placement	
	c) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-514D	SHEET 1	OF 1

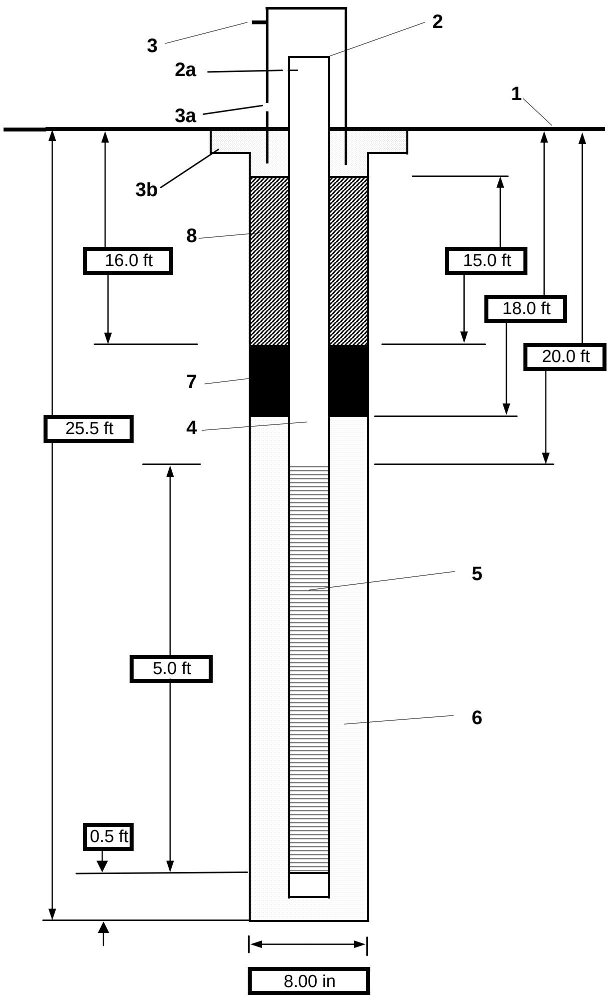
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : East of Corporate Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.23 ft btoc START : 3/30/2005 END : 3/30/2005 LOGGER : PR, CL



1- Ground elevation at well: 584.92

2- Top of casing elevation: 584.70
 a) vent hole?

3- Wellhead protection cover type: Flush mount
 a) weep hole?
 b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
 0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
 1 ft of 100 mesh sand above 10/20 sand.
 a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
 a) Quantity used

8- Grout
 a) Grout mix used: High solids bentonite grout
 b) Method of placement: Tremie
 c) Vol. of surface casing grout
 d) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-515S	SHEET 1 OF 1

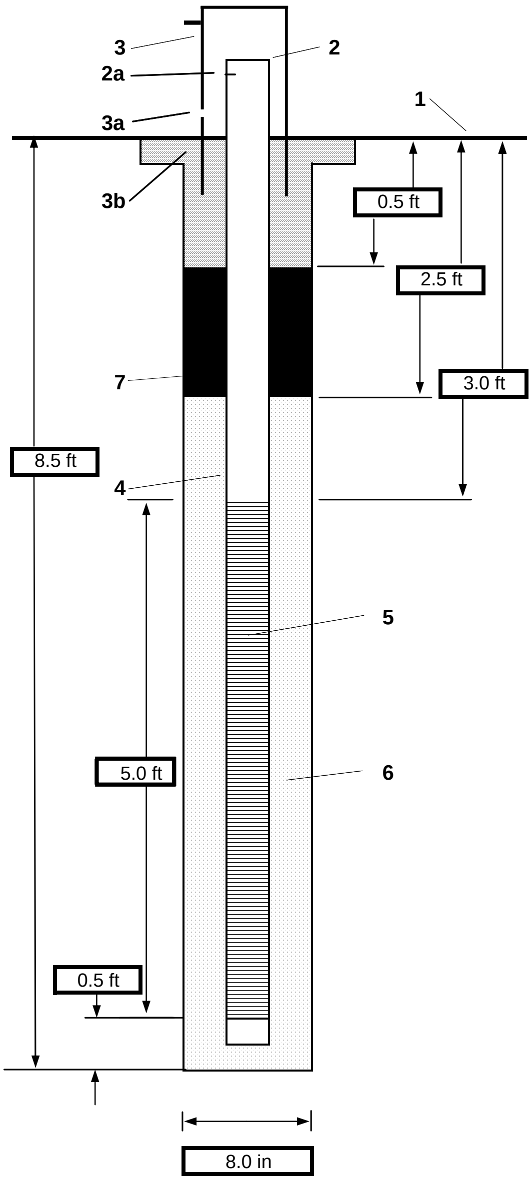
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : South of Triax Building along Seahorse Drive.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 2.24 ft btoc START : 3/31/2005 END : 3/31/2005 LOGGER : PR, CL



1-	Ground elevation at well	583.97
2-	Top of casing elevation	583.71
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~0.5 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand
	a) Quantity used	
7-	Type of seal	Bentonite (1/4-inch pellets)
	a) Quantity used	
8-	Grout	
	a) Grout mix used	None
	b) Method of placement	
	c) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-515D	SHEET 1	OF 1

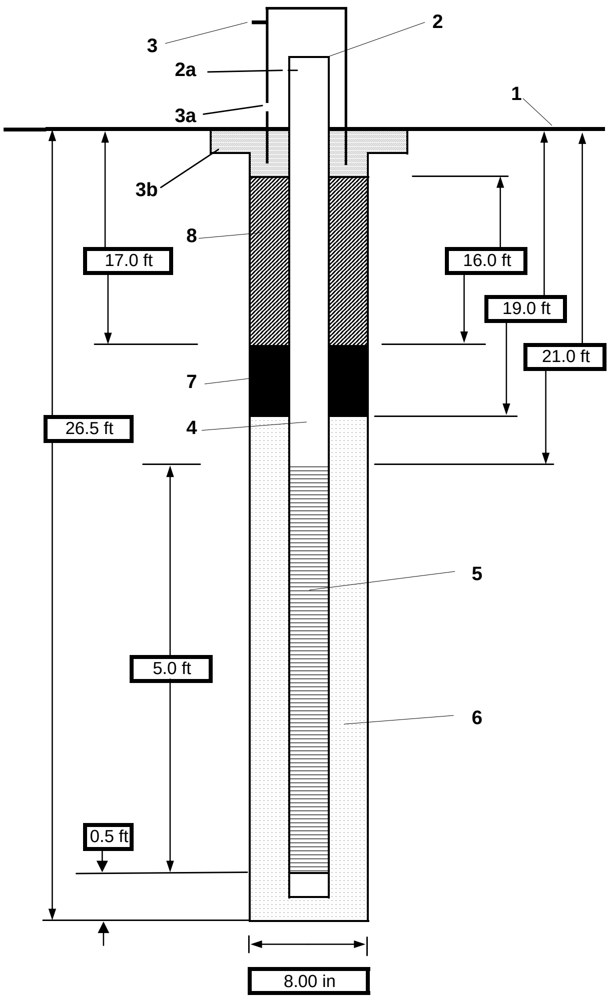
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : South of Triax Building along Seahorse Drive.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 2.19 ft btoc START : 3/31/2005 END : 3/31/2005 LOGGER : PR, CL



1- Ground elevation at well: 583.88

2- Top of casing elevation: 583.58
a) vent hole?

3- Wellhead protection cover type: Flush mount
a) weep hole?
b) concrete pad dimensions: ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing: 2 in diameter schedule 40 PVC

5- Type/slot size of screen: 2 in diameter schedule 40 PVC
0.010 slot

6- Type screen filter: 10/20 sand to 1 ft above screen.
1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used

7- Type of seal: Bentonite (1/4-inch pellets)
a) Quantity used

8- Grout
a) Grout mix used: High solids bentonite grout
b) Method of placement: Tremie
c) Vol. of surface casing grout
d) Vol. of well casing grout

Development method: Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-516S	SHEET 1 OF 1

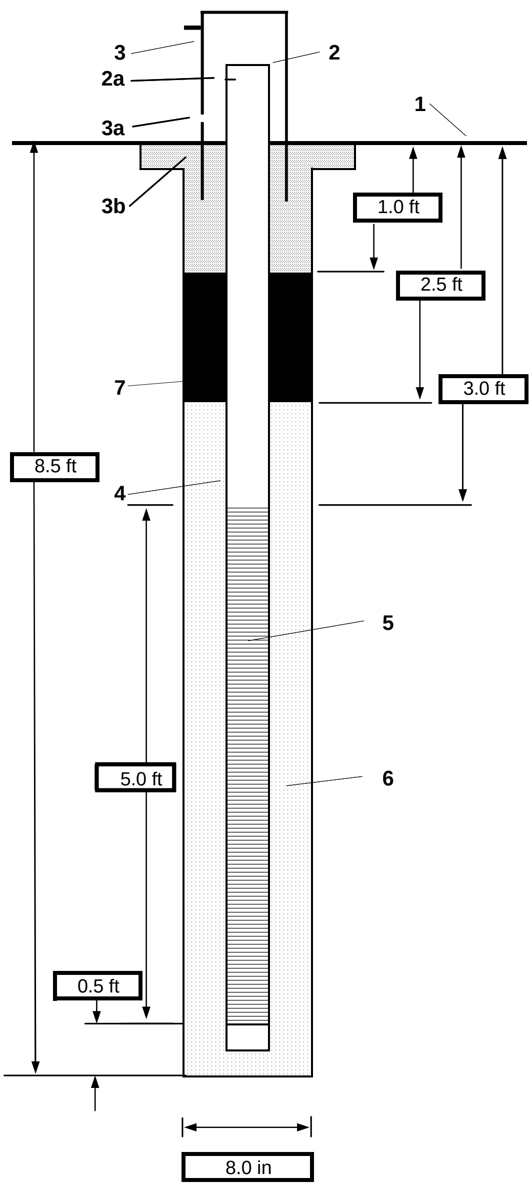
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Larsen Marine property, east of I/O Building.

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 3.60 ft btoc START : 3/29/2005 END : 3/29/2005 LOGGER : PR, CL



1-	Ground elevation at well	584.08
2-	Top of casing elevation	583.80
	a) vent hole?	
3-	Wellhead protection cover type	Flush mount
	a) weep hole?	
	b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4-	Dia./type of well casing	2 in diameter schedule 40 PVC
5-	Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6-	Type screen filter	10/20 sand
	a) Quantity used	
7-	Type of seal	Bentonite (1/4-inch pellets)
	a) Quantity used	
8-	Grout	
	a) Grout mix used	None
	b) Method of placement	
	c) Vol. of well casing grout	
	Development method	Pumped
	Development time	
	Estimated purge volume	

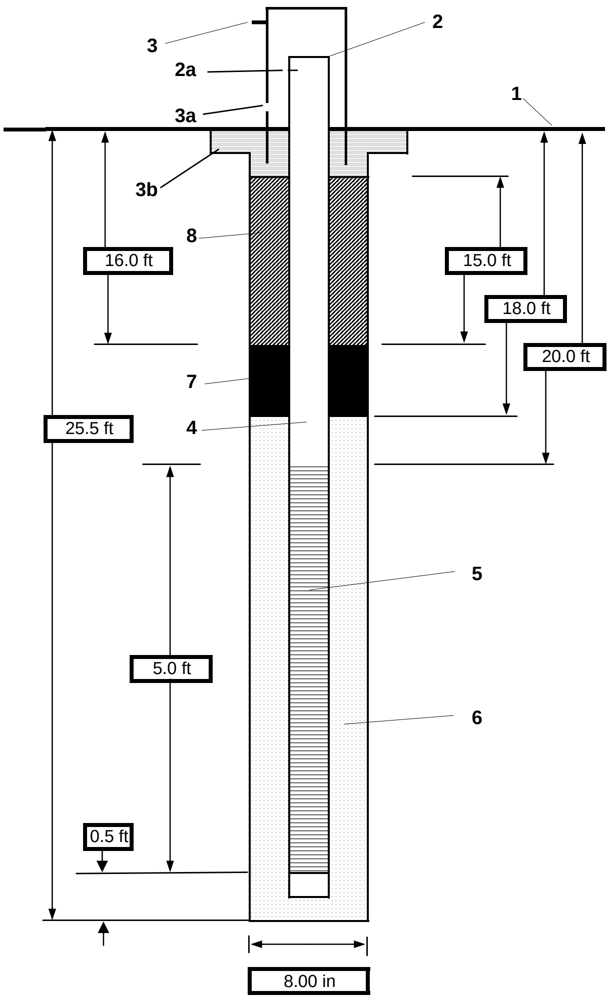
Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-516D	SHEET 1	OF 1

CH2MHILL

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : Larsen Marine property, east of I/O Building.
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 3.61 ft btoc START : 3/29/2005 END : 3/29/2005 LOGGER : PR, CL



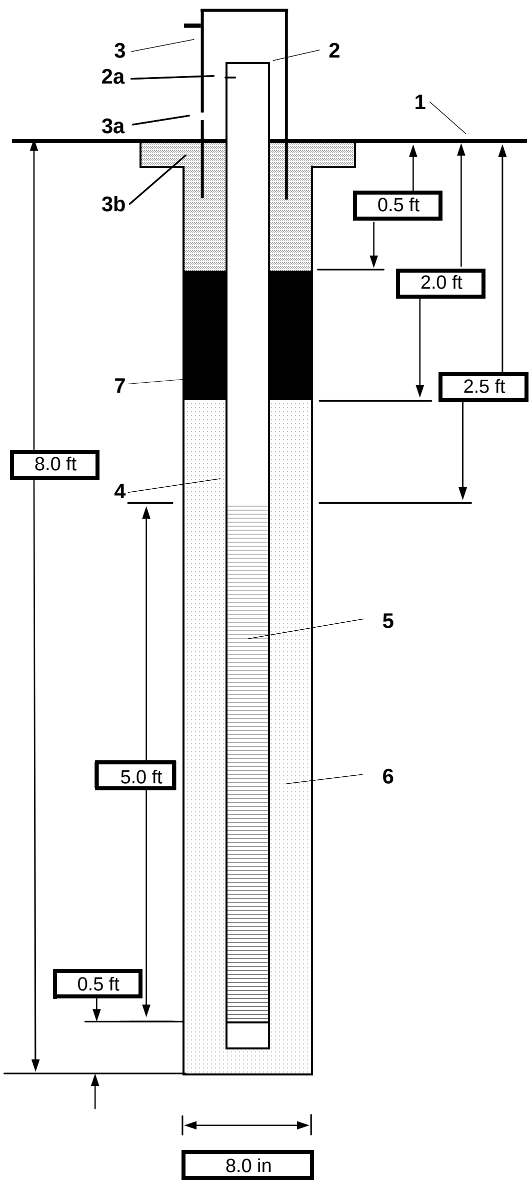
1- Ground elevation at well	584.04
2- Top of casing elevation	583.78
a) vent hole?	
3- Wellhead protection cover type	Flush mount
a) weep hole?	
b) concrete pad dimensions	~1 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand to 1 ft above screen. 1 ft of 100 mesh sand above 10/20 sand.
a) Quantity used	
7- Type of seal	Bentonite (1/4-inch pellets)
a) Quantity used	
8- Grout	
a) Grout mix used	High solids bentonite grout
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER	
186305.FI.01	MW-517S	SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : East of HAZMAT Storage Building
DRILLING CONTRACTOR : IPS
DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger
WATER LEVELS : 4.09 ft btoc START : 4/1/2005 END : 4/1/2005 LOGGER : PR, CL



1- Ground elevation at well	584.18
2- Top of casing elevation	586.64
a) vent hole?	
3- Wellhead protection cover type	Locking aluminum well cover
a) weep hole?	
b) concrete pad dimensions	~0.5 ft x 2 ft x 2 ft
4- Dia./type of well casing	2 in diameter schedule 40 PVC
5- Type/slot size of screen	2 in diameter schedule 40 PVC 0.010 slot
6- Type screen filter	10/20 sand
a) Quantity used	
7- Type of seal	3/8-inch bentonite chips
a) Quantity used	
8- Grout	
a) Grout mix used	None
b) Method of placement	
c) Vol. of well casing grout	
Development method	Pumped
Development time	
Estimated purge volume	

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

PROJECT NUMBER	WELL NUMBER		
186305.FI.01	MW-517D	SHEET 1	OF 1

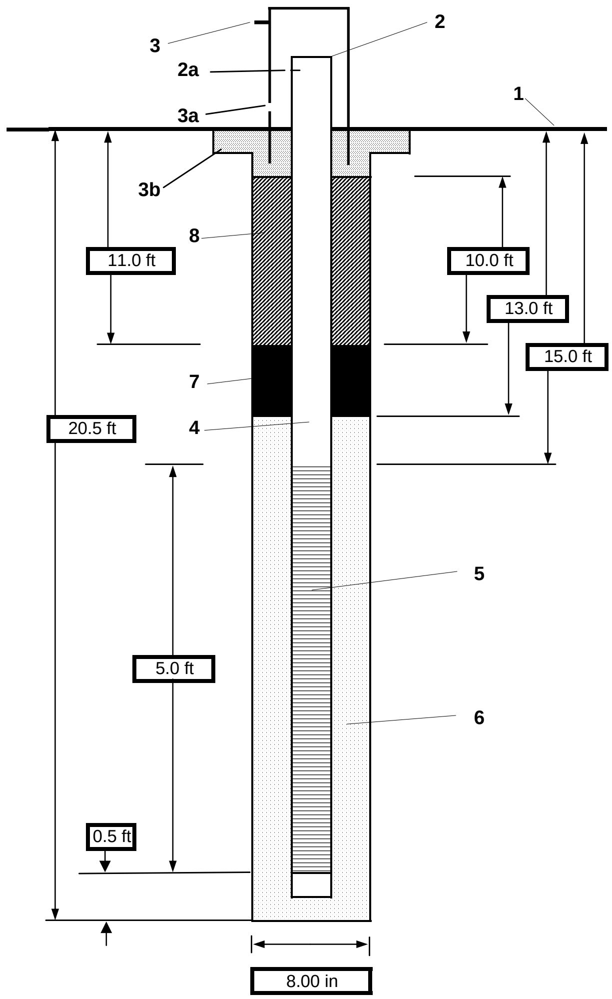
WELL COMPLETION DIAGRAM

PROJECT : OMC Plant 2 LOCATION : East of HAZMAT Storage Building

DRILLING CONTRACTOR : IPS

DRILLING METHOD AND EQUIPMENT USED : 4.25-inch I.D. Hollow Stem Auger

WATER LEVELS : 4.07 ft btoc START : 4/1/2005 END : 4/1/2005 LOGGER : PR, CL



1- Ground elevation at well 584.19

2- Top of casing elevation 586.64
 a) vent hole?

3- Wellhead protection cover type Locking aluminum well cover
 a) weep hole?
 b) concrete pad dimensions ~1 ft x 2 ft x 2 ft

4- Dia./type of well casing 2 in diameter schedule 40 PVC

5- Type/slot size of screen 2 in diameter schedule 40 PVC
 0.010 slot

6- Type screen filter 10/20 sand to 1 ft above screen.
 1 ft of 100 mesh sand above 10/20 sand.
 a) Quantity used

7- Type of seal Bentonite (1/4-inch pellets)
 a) Quantity used

8- Grout
 a) Grout mix used High solids bentonite grout
 b) Method of placement Tremie
 c) Vol. of surface casing grout
 d) Vol. of well casing grout

Development method Pumped

Development time

Estimated purge volume

Comments 6-inch filter pack sand placed in bottom of borehole prior to monitoring well installation.

Building Materials Investigation
OMC Plant 2 (Operable Unit 4), Waukegan, Illinois
WA No. 237-RICO-0528, Contract No. 68-W6-0025

PREPARED FOR: USEPA

PREPARED BY: CH2M HILL

DATE: October 13, 2005

Introduction

This memorandum documents the activities associated with the Building Materials Investigation completed as part of the remedial investigation at the Outboard Marine Corporation Plant 2 (OMC Plant 2) site in Waukegan, Illinois. The investigation included the periodic collection of wipe samples, concrete cores, and paint and concrete chip samples between December 13, 2004, and April 8, 2005.

The overall objective of sampling the building materials (metal structures, piping, concrete walls, and floors) was to provide the data to determine if residual contamination exists that may impact future actions considered for the building and handling and disposal options for building materials, and not to evaluate the extent of contamination. Polychlorinated biphenyl (PCB) contamination was identified in the Old Die Cast, Parts Storage, and Metal Working Areas during the discovery and removal activities conducted by USEPA.

This memorandum includes the following:

- Description of specific field activities performed, including locations, methods, and deviations from the site-specific project plans
- A summary of sample locations, analyses, and observations
- Photodocumentation of the sample locations (see Attachment 1)

Investigation Activities

The activities completed for this investigation included concrete coring, wipe sampling of metal and other nonporous surfaces, wipe sampling of porous surfaces, and concrete/paint chip sampling. The objectives and sampling activities for the different types of building materials are described below.

Metal Structures and Piping (nonporous surfaces)

Wipe sampling of metal and other nonporous surfaces (defined within the Toxic Substances Control Act (TSCA) [40 CFR 761.3] as a smooth, unpainted solid surface that limits penetration of liquid containing PCBs beyond the immediate surface) for PCBs was conducted. The data will be used to determine the proportion of metal that will require decontamination and, if contaminated (i.e., above 10 µg/100 cm^2), the type of thermal treatment or disposal that may be required.

Sample Number and Locations

The locations and numbers of the wipe samples were determined during the site reconnaissance at the start of the field investigation. During this activity, the locations and condition of unpainted overhead piping, metal girders, and other unpainted metal surfaces in the Old Die Cast, Parts Storage, and Metal Working Areas (i.e., the areas where PCB contamination were previously identified) were identified and sketched on a facility map. A photographic record of the building interior was also created. Evidence of visual contamination, such as the presence of an oily film, was noted on the sketch to allow later correlation to PCB wipe results.

Based on the site reconnaissance, 49 initial locations were selected from throughout the OMC Plant 2 building to represent the nonporous building materials (Figure 1). The description of the sample location and visual evidence of contamination are presented in Table 1.

Upon review of the preliminary PCB results and discussions with USEPA, the nonporous wipe sampling was expanded east into the Trim Building and New Die Cast Area (Figure 1). This additional investigation included 15 additional locations of nonporous materials.

The wipe location coordinates (northing and easting) were identified from known survey locations or estimated with a measuring tape from known survey locations and transferred to a site map.

Sampling Activities

The location to be sampled was identified using the map and photos prepared during site reconnaissance activities. Using an electric lift, sampling personnel were lifted into position near the sample location. A disposable aluminum template with a 100-cm^2 opening was placed on the sample location. The cotton sample pad preserved with hexane was removed from a clean glass jar and any excess hexane was contained in a glass jar for future disposal.

The sample area within the template was then wiped from left to right and from top to bottom using the hexane-soaked cotton pad. If a co-located sample was required, a new disposable aluminum template and clean hexane-soaked cotton pad were used. After sample collected was completed, the disposable aluminum template was decontaminated and placed in the trash.

Wipe samples were collected and submitted to CT Laboratories in Baraboo, Wisconsin, to be analyzed for PCBs. All wipe samples were collected in accordance with the procedures presented in the field sampling plan

Wipe samples collected from nonporous (unfinished metal) surfaces were submitted for PCB analysis to CT Laboratories of Baraboo, Wisconsin.

Porous Surfaces Other Than Floors

Wipe samples from porous surfaces (defined within TSCA [40 CFR 761.3] as "…any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; …"), such as concrete block walls, painted metal walls, painted piping, and painted girders that are not visibly contaminated, were collected and analyzed for PCBs to confirm that concentrations are less than 10 µg/100 cm².

Sample Location and Number

The locations for the wipe samples were also determined during the site reconnaissance. During the reconnaissance, the condition (e.g., flaking paint) and locations of the porous interior walls in the Old Die Cast, Parts Storage, and Metal Working Areas (i.e., the areas where PCB contamination were previously identified) were identified on a facility map. Evidence of visual contamination, such as the presence of an oily film, was also noted on the sketch to allow later correlation to PCB wipe results. A photographic record was also created of the sample locations.

Sixty-two porous wipe locations were initially sampled based on the site reconnaissance (Figure 2). The description of the sample location and visual evidence of contamination are presented in Table 1.

Review of the preliminary PCB results from the wipe samples identified 8 locations with PCB concentrations greater than 100 µg/100 cm² within the Old Die Cast Area, Parts Storage Area, and the Metal Working Area. In accordance with the *Field Sampling Plan* (FSP) (CH2M HILL, 2004), bulk samples (paint or concrete chips) were collected from these locations for comparison to the 50-mg/kg TSCA disposal criteria. Two additional chip sample locations, PW-015 and PW-043, which had porous wipe sample results < 100 µg/100 cm², were also sampled to provide information on a wider range of porous materials. Sample location descriptions are provided in Table 1.

PCB wipe and paint/concrete chip sample location coordinates (northing and easting) were identified from known survey locations or estimated with a measuring tape from known survey locations and transferred to a site map.

Sampling Procedures

The location to be sampled was identified using the map and photos prepared during site reconnaissance activities. Using an electric lift, sampling personnel were lifted into position near the sample location. A disposable aluminum template with a 100-cm² opening was placed on the sample location. The cotton sample pad preserved with hexane was removed from a clean glass jar and any excess hexane was contained in a glass jar for future disposal.

The sample area within the template was then wiped from left to right and from top to bottom using the hexane-soaked cotton pad. If a co-located sample was required, a new disposable aluminum template and clean hexane-soaked cotton pad were used.

Bulk sample locations (paint or concrete chip) identified based on initial porous wipe sample results were cleaned using Alconox® and distilled water before paint or concrete chip collection. Paint chip, concrete chip, and wipe samples were collected and submitted to CT Laboratories in Baraboo, Wisconsin, to be analyzed for PCBs. All wipe samples, paint chip, and concrete chip samples were collected in accordance with the procedures presented in the *Field Sampling Plan* (CH2M HILL, 2004).

Porous Floor Surfaces

Limited concrete core samples were collected and analyzed to determine how deeply PCBs may have penetrated into the floors, the disposal requirements for the concrete, and the potential for residual PCBs and metals to leach from the concrete. Concrete core samples (including different depth intervals at each location) were collected and analyzed for PCBs. The results will be compared to the 50-mg/kg TSCA limit to determine the general proportion of the concrete in the Old Die Cast, Parts Storage, and Metal Working Areas that will require disposal in a Subtitle D landfill versus disposal in a Subtitle C or TSCA chemical waste landfill.

Sample Number and Locations

Twenty-five concrete chip samples were collected from 22 concrete cores installed in the concrete floors of the Old Die Cast, New Die Cast, Parts Storage, and Metal Working Areas (Figure 3). Concrete core thickness and visual evidence of contamination (staining) are shown in Table 2. Concrete core location coordinates (northing and easting) were identified from known survey locations or estimated with a measuring tape from known survey locations and transferred to a site map.

In addition to the locations identified in the FSP, core location CB-015 was included to verify decontamination methods from an area with a previous floor wipe sample result (Figure 3).

Additional samples were collected at three of the concrete core locations (CB-001, CB-002, and CB-021) from depths greater than 4 inches based on visual evidence of contamination. These samples were collected from depths of 4.0 to 6.0 inches, 4.0 to 7.5 inches, and 4.0 to 5.0 inches, respectively, from the top of the concrete.

Discussions with USEPA indicated that the Triax Building was being considered as a potential location of the groundwater treatment plant for the remedial action being conducted at the adjacent Waukegan Coke Plant site. Based on the potential near-term use of the building, the investigation was expanded to include four additional wipe sample locations off the floor of the Triax Building.

Sampling Procedures

Concrete floor locations for bulk concrete sampling were identified using photos and maps developed during site reconnaissance activities. A diamond-bit, electric concrete coring machine was used to remove the concrete core at the sample location. Once the core had been removed, all excess soil from the bottom of the core was removed to prevent cross contamination of the sample. The soil was collected and placed with other soil generated during investigation activities. The concrete core was then placed into a disposable plastic bag, which was placed into a disposable aluminum container. The aluminum container was then struck with a hammer to crush the core, while containing the fragments and preventing cross contamination.

The concrete core was crushed into fragments smaller than 1 inch to facilitate laboratory analysis. The fragments were then removed from the plastic bag and placed into a clean, stainless steel bowl to be homogenized. The homogenized sample was then placed into clean glass jars to be shipped to the laboratory for PCB analysis. All sample collection procedures were performed in accordance with the procedures presented in the *Field Sampling Plan* (CH2M HILL, 2004).

Samples were collected and submitted to CT Laboratories in Baraboo, Wisconsin, to be analyzed for PCBs. The samples and analyses requested are provided in Table 2.

CB-016 was analyzed for toxicity characteristic leaching procedure PCBs when the sample should have been analyzed for target compound list PCBs. This was likely due to a communication error between the field team and sample manager.

Reference

CH2M HILL. 2004. Field Sampling Plan, OMC Plant 2, Waukegan, Illinois, Final. November.

TABLE 1
Building Materials Investigation Wipe/Chip Sample Summary
OMC Plant 2

Location Identifier	Location Description	Date/Sampled	Analyses PCBs	Visually Contaminated
Non-Porous Wipe Samples				
NPW-001	6" Overhead pipe	12/14/2004	X	
NPW-002	2" Sprinkler	12/14/2004	X	
NPW-003	Girder	12/14/2004	X	
NPW-004	3" Overhead pipe	12/14/2004	X	
NPW-005	Fan	12/14/2004	X	X
NPW-006	3" Pipe	12/14/2004	X	
NPW-007	3/4" Pipe	12/14/2004	X	
NPW-008	1.5" Black pipe (lowest)	12/14/2004	X	
NPW-009	3" Aluminum pipe that ends abruptly	12/14/2004	X	
NPW-010	3/4" Pipe (looks like sprinkler)	12/14/2004	X	X
NPW-011	Girder	12/15/2004	X	
NPW-012	3" Pipe next to lights	12/15/2004	X	
NPW-013	3/4" Water pipe (sprinkler)	12/15/2004	X	
NPW-014	1/2" Pipe with plugged ends coming off pipe	12/15/2004	X	
NPW-015	Girder	12/15/2004	X	
NPW-016	8" Pipe	12/15/2004	X	
NPW-017	Wall support	12/15/2004	X	
NPW-018	Catwalk	12/15/2004	X	
NPW-019	Wire chase	12/15/2004	X	
NPW-020	3" Black pipe	12/15/2004	X	
NPW-021	Fan	12/15/2004	X	X
NPW-022	1.5" Pipe along wall	12/15/2004	X	
NPW-023	Catwalk	12/15/2004	X	
NPW-024	1.5" Black pipe	12/15/2004	X	
NPW-025	Girder	12/15/2004	X	
NPW-026	3" or 4" Pipe	12/15/2004	X	
NPW-027	4" Pipe	12/15/2004	X	X
NPW-028	Same 4" pipe as NPW-27	12/15/2004	X	
NPW-029	Girder	12/15/2004	X	
NPW-030	1.5" Black pipe	12/15/2004	X	
NPW-031	Girder	12/15/2004	X	
NPW-032	5" Black pipe	12/15/2004	X	
NPW-033	1.5" Pipe	12/15/2004	X	
NPW-034	Fan	12/16/2004	X	X
NPW-035	Girder	12/16/2004	X	
NPW-036	6" Overhead pipe	12/16/2004	X	
NPW-037	3/4" Sprinkler line	12/16/2004	X	

TABLE 1
Building Materials Investigation Wipe/Chip Sample Summary
OMC Plant 2

Location Identifier	Location Description	Date/Sampled	Analyses PCBs	Visually Contaminated
NPW-038	3/4" Sprinkler line	12/16/2004	X	
NPW-039	Girder	12/16/2004	X	
NPW-040	3/4" Sprinkler line	12/16/2004	X	
NPW-041	3/4" Sprinkler line	12/16/2004	X	X
NPW-042	1.5" Pipe	12/16/2004	X	
NPW-043	3" Pipe	12/16/2004	X	
NPW-044	3-3/4" Pipes	12/16/2004	X	
NPW-045	2" Brown pipe	12/16/2004	X	
NPW-046	Girder	12/16/2004	X	
NPW-047	3" Overhead pipe	12/16/2004	X	
NPW-048	1" Overhead pipe	12/16/2004	X	
Porous Wipe Samples				
PW-001	Girder—painted	12/16/2004	X	
PW-002	Wall	12/16/2004	X	
PW-003	1.5" Pipe	12/16/2004	X	
PW-004	Girder	12/16/2004	X	
PW-005	Girder	12/16/2004	X	
PW-006	Wall	12/15/2004	X	
PW-007	3" White pipe (lateral with oil dripping)	12/16/2004	X	
PW-008	3/4" White pipe on wall	12/16/2004	X	
PW-009	3" White pipe—lowest hanging	12/16/2004	X	
PW-010	Wall	12/14/2004	X	
PW-011	Girder	12/16/2004	X	
PW-012	5" Red pipe	12/16/2004	X	
PW-013	Wall	12/16/2004	X	
PW-014	Wall	12/16/2004	X	
PW-015	Box	12/15/2004	X	
PW-016	Crane	12/16/2004	X	
PW-017	1.5" Pipe along wall	12/16/2004	X	
PW-018	4" Brown pipe	12/16/2004	X	
PW-019	Wall	12/15/2004	X	
PW-020	Concrete wall	12/15/2004	X	
PW-021	Painted wall window sill (porous concrete)	12/15/2004	X	
PW-022	Silver girder	12/15/2004	X	
PW-023	I-beam to floor	12/15/2004	X	X
PW-024	I-beam to floor	12/15/2004	X	
PW-025	Top of light fixture	12/16/2004	X	X
PW-026	Top of light fixture	12/14/2004	X	X

TABLE 1
Building Materials Investigation Wipe/Chip Sample Summary
OMC Plant 2

Location Identifier	Location Description	Date/Sampled	Analyses PCBs	Visually Contaminated
PW-027	Wall	12/14/2004	X	
PW-028	Painted electrical box	12/14/2004	X	
PW-029	Wall	12/14/2004	X	
PW-030	Girder painted	12/14/2004	X	
PW-031	I-beam to floor	12/14/2004	X	X
PW-032	Wall—no paint	12/14/2004	X	
PW-033	Backwall	12/14/2004	X	
PW-034	Electrical boxes overhead—oily	12/14/2004	X	
PW-035	Electrical boxes overhead—oily	12/14/2004	X	
PW-036	I-beam to floor	12/14/2004	X	
PW-037	Electrical boxes overhead—oily	12/15/2004	X	
PW-038	8" Red pipe	12/15/2004	X	
PW-039	8" Red pipe	12/15/2004	X	
PW-040	Wall	12/15/2004	X	
PW-041	3/4" Pipe	12/15/2004	X	
PW-042	Angle iron covering conduit	12/15/2004	X	X
PW-043	Angle Iron—green covering conduit	12/15/2004	X	
PW-044	Electrical boxes overhead	12/15/2004	X	
PW-045	Yellow I-beam support	12/15/2004	X	
PW-046	Electrical box overhead	12/15/2004	X	
PW-047	I-beam to floor	12/14/2004	X	
PW-048	I-beam to floor	12/15/2004	X	
PW-049	Electrical panel overhead	12/16/2004	X	
PW-050	Wall	12/16/2004	X	
PW-051	Wall	12/16/2004	X	
PW-052	Wall	12/16/2004	X	
PW-053	Inside girder—4" Pipe	12/16/2004	X	
PW-054	Wall	12/15/2004	X	
PW-055	Wall	12/15/2004	X	
PW-056	Wall	12/15/2004	X	
PW-057	I-beam to floor	12/16/2004	X	
PW-058	Brown chase for electrical	12/16/2004	X	
PW-059	Lower part of wall	12/15/2004	X	
PW-060	Lower part of wall	12/15/2004	X	
PW-061	Fallen 3" water pipe	12/15/2004	X	
PW-062	Floor wipe sample	4/6/2005	X	
PW-063	Floor wipe sample	4/6/2005	X	
PW-064	Floor wipe sample	4/6/2005	X	

TABLE 1
Building Materials Investigation Wipe/Chip Sample Summary
OMC Plant 2

Location Identifier	Location Description	Date/Sampled	Analyses PCBs	Visually Contaminated
PW-065	Floor wipe sample	4/6/2005	X	
NPW-066	Overhead 1/2" conduit	4/6/2005	X	
NPW-067	Overhead 1" north/south conduit	4/6/2005	X	
NPW-068	Overhead 1.5" pipe running east/west	4/6/2005	X	
NPW-069	Overhead 1.5" pipe running east/west	4/6/2005	X	
NPW-070	Overhead 1.5" pipe running east/west	4/6/2005	X	
NPW-071	Vertical ducts on west wall	4/6/2005	X	
NPW-072	Electrical box cover with 3/4" electrical conduit	4/6/2005	X	
NPW-073	Vertical 2" electrical conduit (set of 2, painted on bottom)	4/6/2005	X	
NPW-074	Top of roll cage for overhead door	4/6/2005	X	
NPW-075	Top of heater shield	4/6/2005	X	
NPW-076	2" electrical pipe conduit	4/6/2005	X	
NPW-077	Top of roll cage for overhead door	4/6/2005	X	
NPW-078	Fan shroud/cover on wall	4/6/2005	X	
NPW-079	Overhead 3" conduit along bottom of east/west catwalk	4/6/2005	X	
NPW-080	4" gas line to heater	4/6/2005	X	

Notes:
a. "PCBs" represents "Polychlorinated Biphenyls."
b. Porous paint/concrete chips collected at PW-016, PW-020, PW-023, PW-025, PW-026, PW-041 through PW-043, PW-059 and PW-061 were all collected on 4/7/2005.
c. All analyses completed by CT Laboratories of Baraboo, WI.
d. Refer to *Quality Assurance Project Plan, OMC Plant 2* (January 2005) for specific analytical test methods used.

TABLE 2
Building Materials Investigation Sample Summary
OMC Plant 2

Concrete Core Samples

Location Identifier	Sample Interval	Date/Sampled	Analyses PCBs	Visually Contaminated	Concrete Slab Thickness
CB-001	0–4"	1/19/2005	X	X	> 34"
CB-001	4–8"	1/19/2005	X	X	> 34"
CB-002	0–4"	1/18/2005	X	X	7.5"
CB-002	4–7.5"	1/18/2005	X	X	7.5"
CB-003	0–4"	1/18/2005	X	X	7.5"
CB-004	0–4"	1/18/2005	X		5.5"
CB-005	0–4"	1/18/2005	X		5.5"
CB-006	0–4"	1/19/2005	X		9.5"
CB-007	0–4"	1/19/2005	X		6.0"
CB-008	0–4"	1/18/2005			6.5"
CB-009	0–4"	1/18/2005	X	X	8.5"
CB-010	0–4"	1/17/2005	X		6.0"
CB-011	0–4"	1/18/2005			6.0"
CB-012	0–4"	1/17/2005	X	X	6.0"
CB-013	0–4"	1/19/2005			8.0"
CB-014	0–4"	1/18/2005		X	8.5"
CB-015	0–4"	1/18/2005		X	6.5"
CB-016[f]	0–4"	1/20/2005			6.5"
CB-017	0–4"	1/17/2005	X		5.0"
CB-018	0–4"	1/19/2005	X	X	8.5"
CB-019	0–4"	1/18/2005	X		7.0"
CB-020	0–4"	1/17/2005	X		6.0"
CB-021	0–4"	1/19/2005	X	X	8.0"
CB-021	4–8"	1/19/2005	X	X	8.0"
CB-022	0–4"	1/18/2005	X	X	5.0"

Notes:
a. "PCBs" represents "Polychlorinated Biphenyls."
b. Concrete core locations CB-008, CB-011, and CB-013 through CB-015 were analyzed for TCL PCBs, TAL metals & cyanide, SPLP PCBs and metals.
c. Concrete core location CB-016 was analyzed for TCLP PCBs.
d. All analyses completed by CT Laboratories of Baraboo, WI.
e. Refer to *Quality Assurance Project Plan, OMC Plant 2* (January 2005) for specific analytical test methods used.
f. CB-016 was analyzed for TCLP PCBs when the sample should have been analyzed for TCL PCBs. This was likely due to a communication error between the field team and sample manager.

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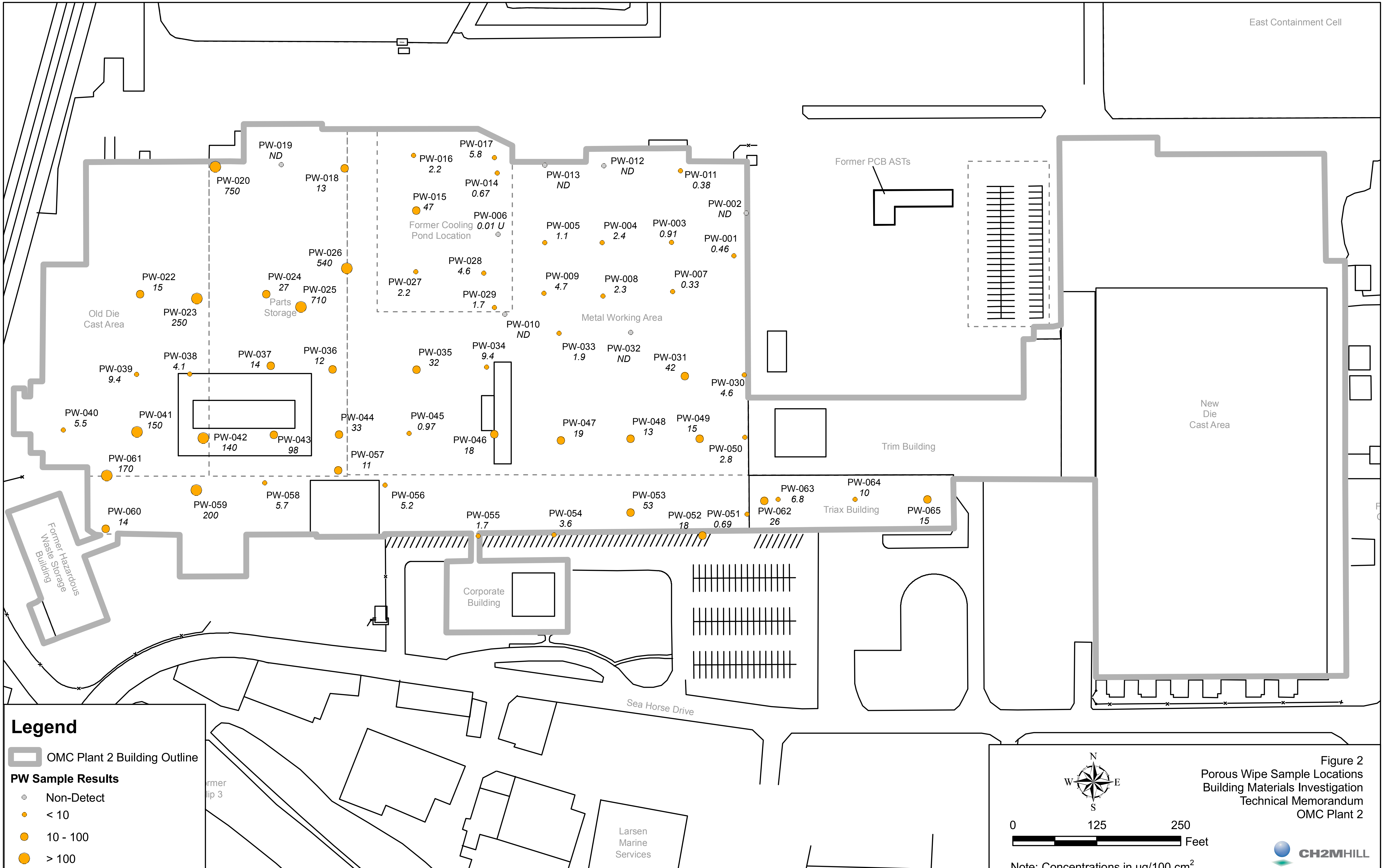

Figure 2
Porous Wipe Sample Locations
Building Materials Investigation
Technical Memorandum
OMC Plant 2

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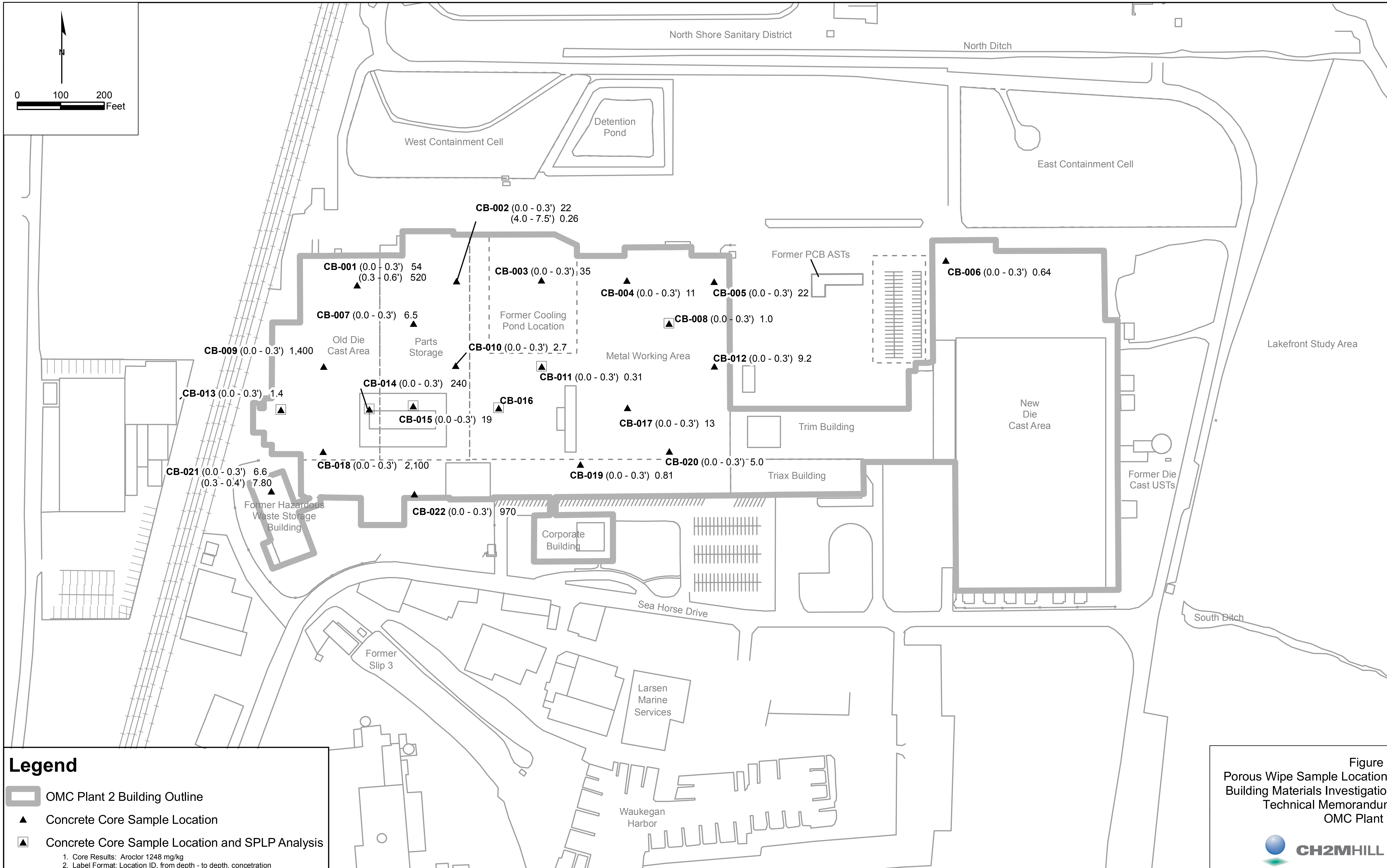

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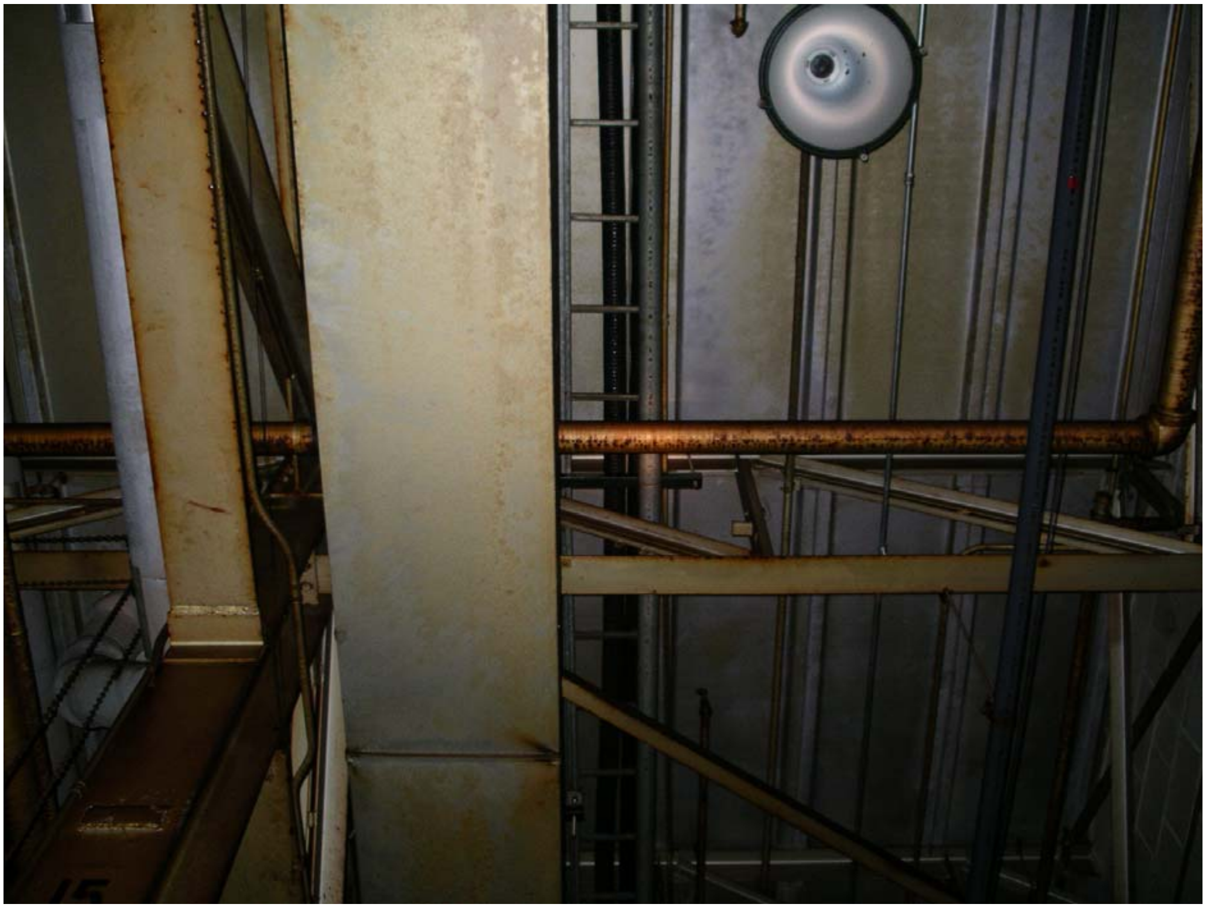
Attachment 1

Sample Location Photographs

NPW-001

NPW-002

NPW-003



NPW-004

NPW-005

NPW-006

NPW-007

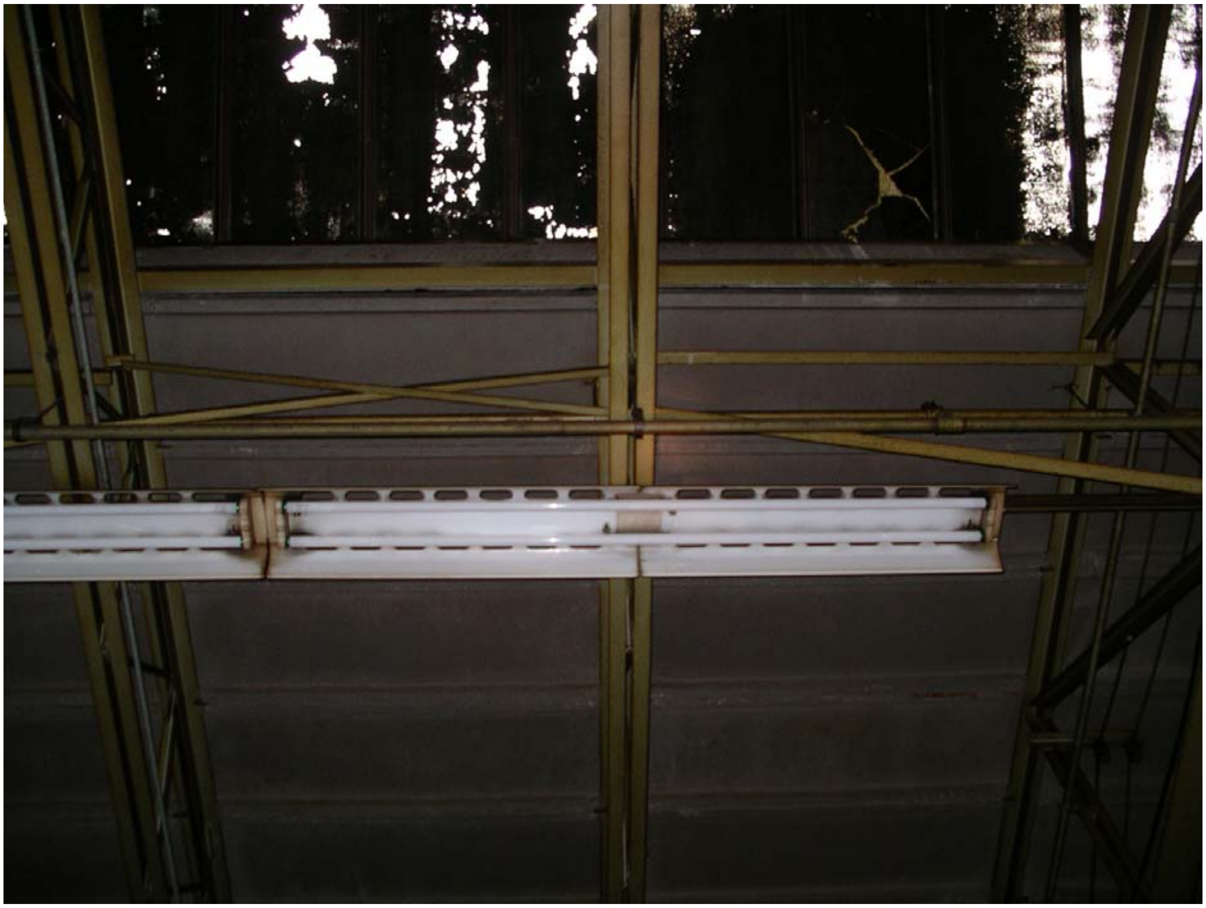
NPW-008

NPW-009

NPW-010

NPW-011

NPW-012



NPW-013

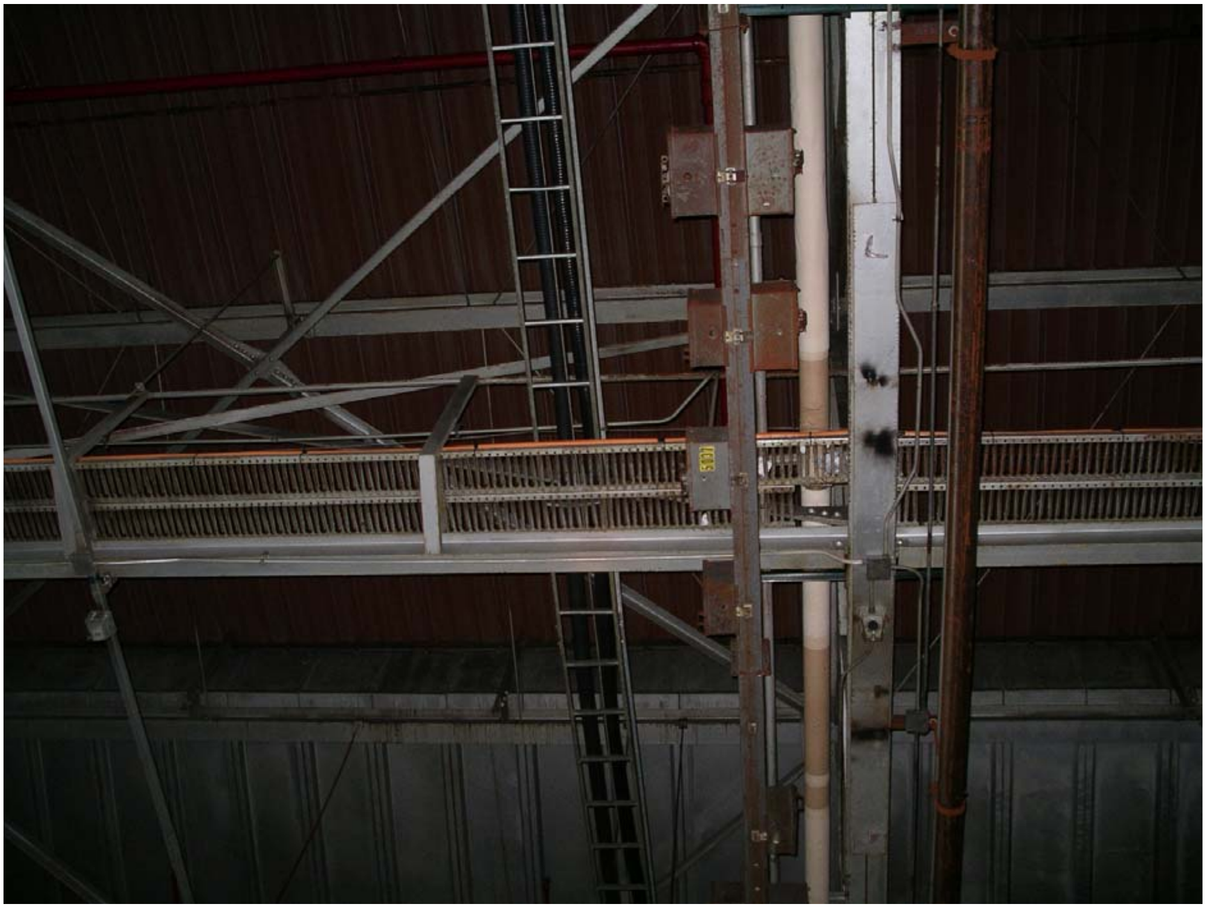
NPW-014

NPW-015

NPW-016

NPW-017

NPW-018



NPW-019

NPW-020

NPW-021

NPW-022

NPW-023

NPW-024

NPW-025

NPW-026

NPW-027

NPW-028

NPW-029

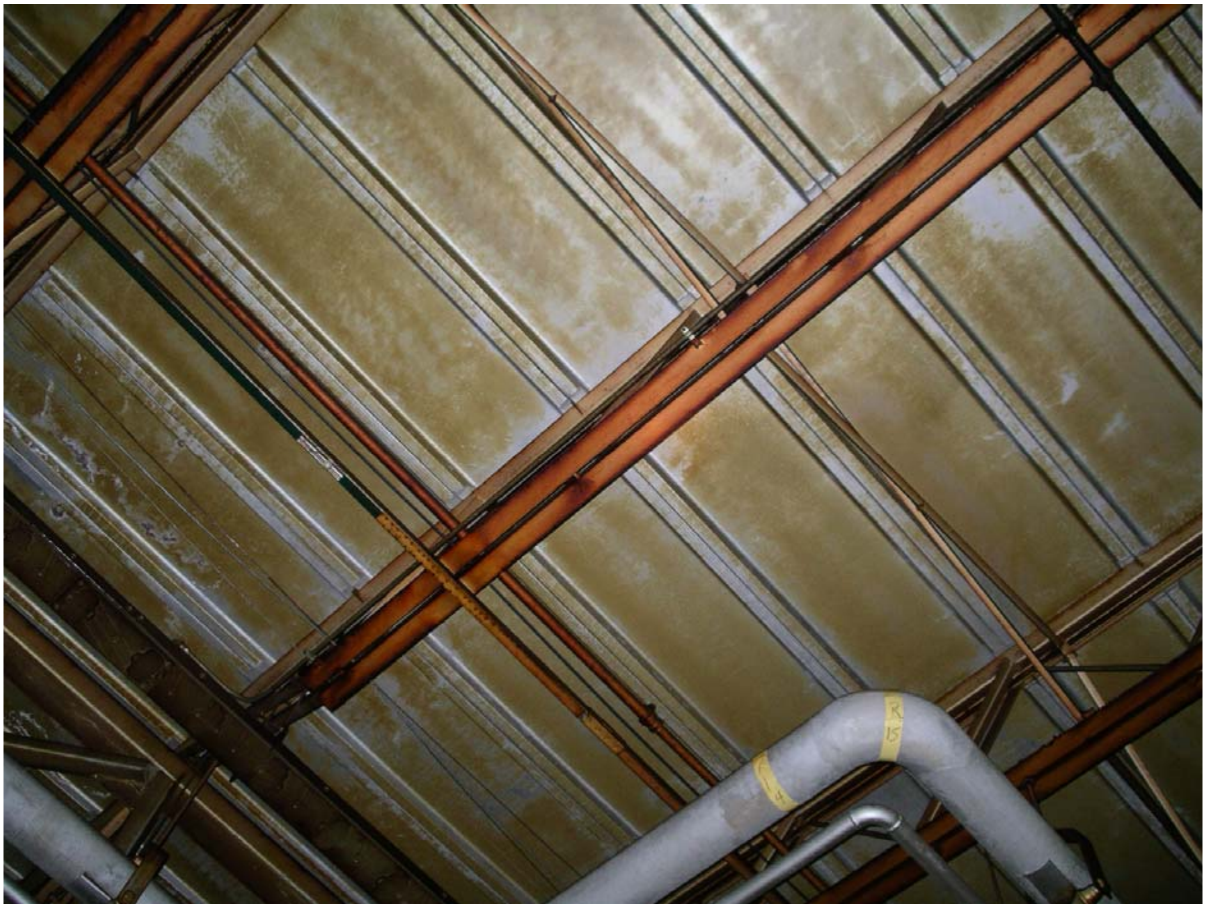
NPW-030

NPW-031

NPW-032

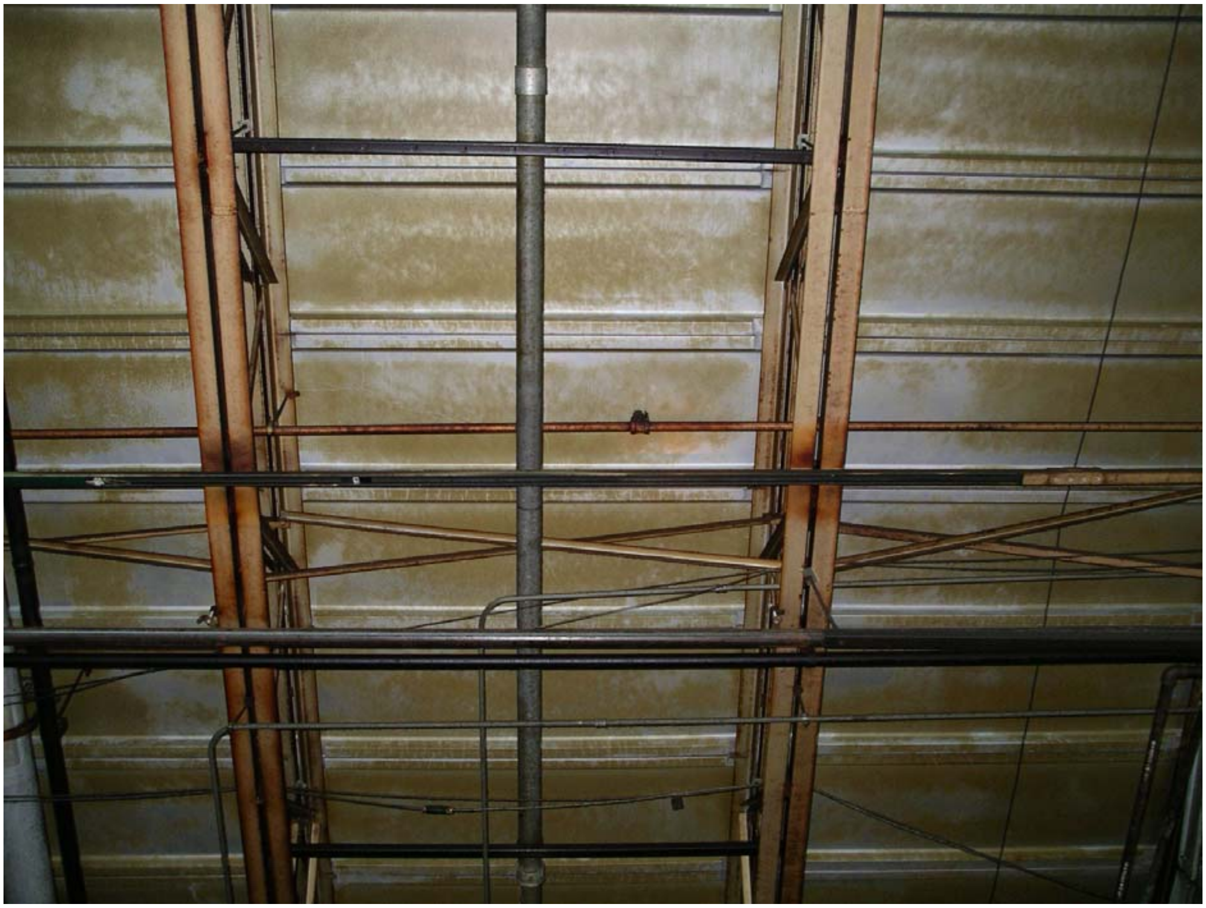
NPW-033

NPW-034



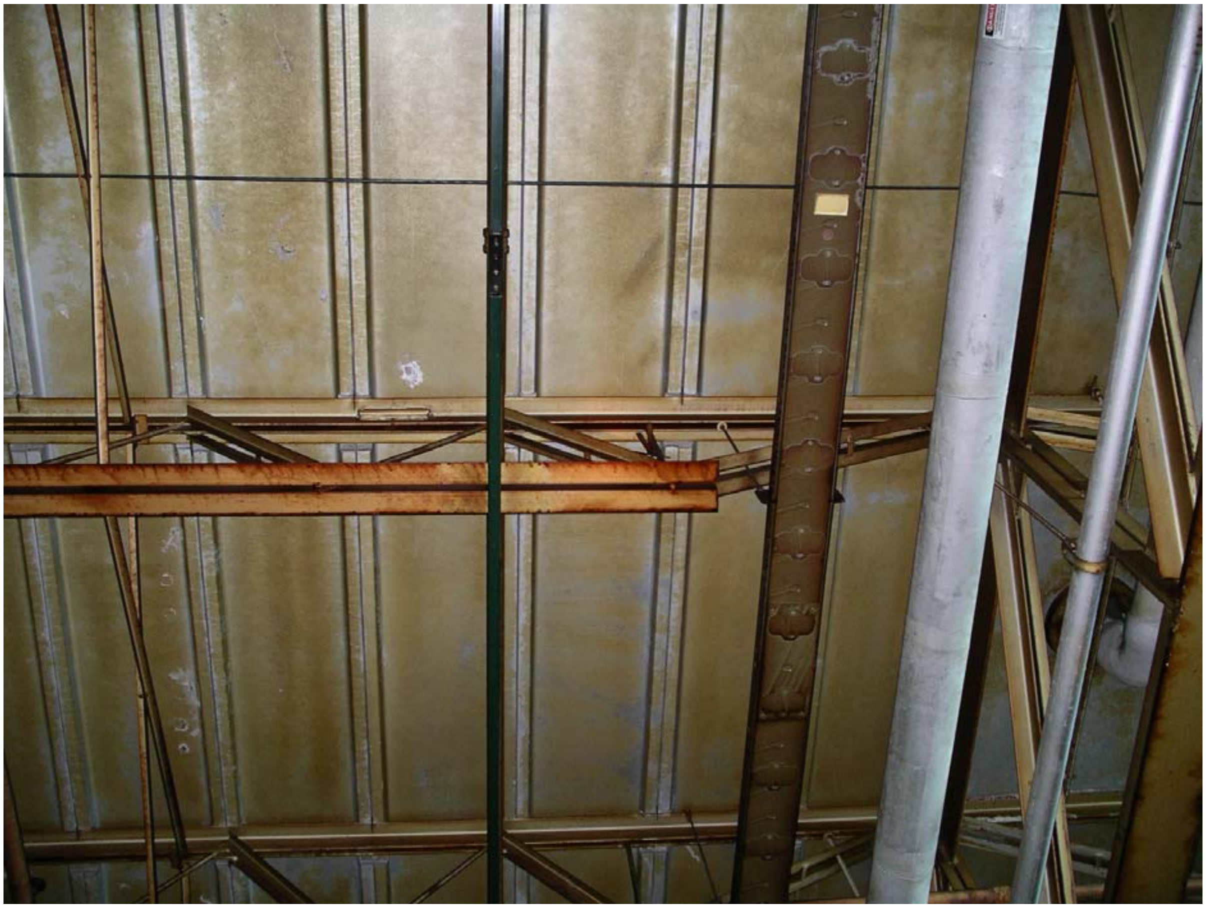
NPW-035

NPW-036



NPW-037

NPW-038



NPW-039

NPW-040

NPW-041

NPW-042

NPW-043

NPW-044

NPW-045

NPW-046

NPW-047

NPW-048

NPW-066

NPW-067

NPW-068

NPW-069

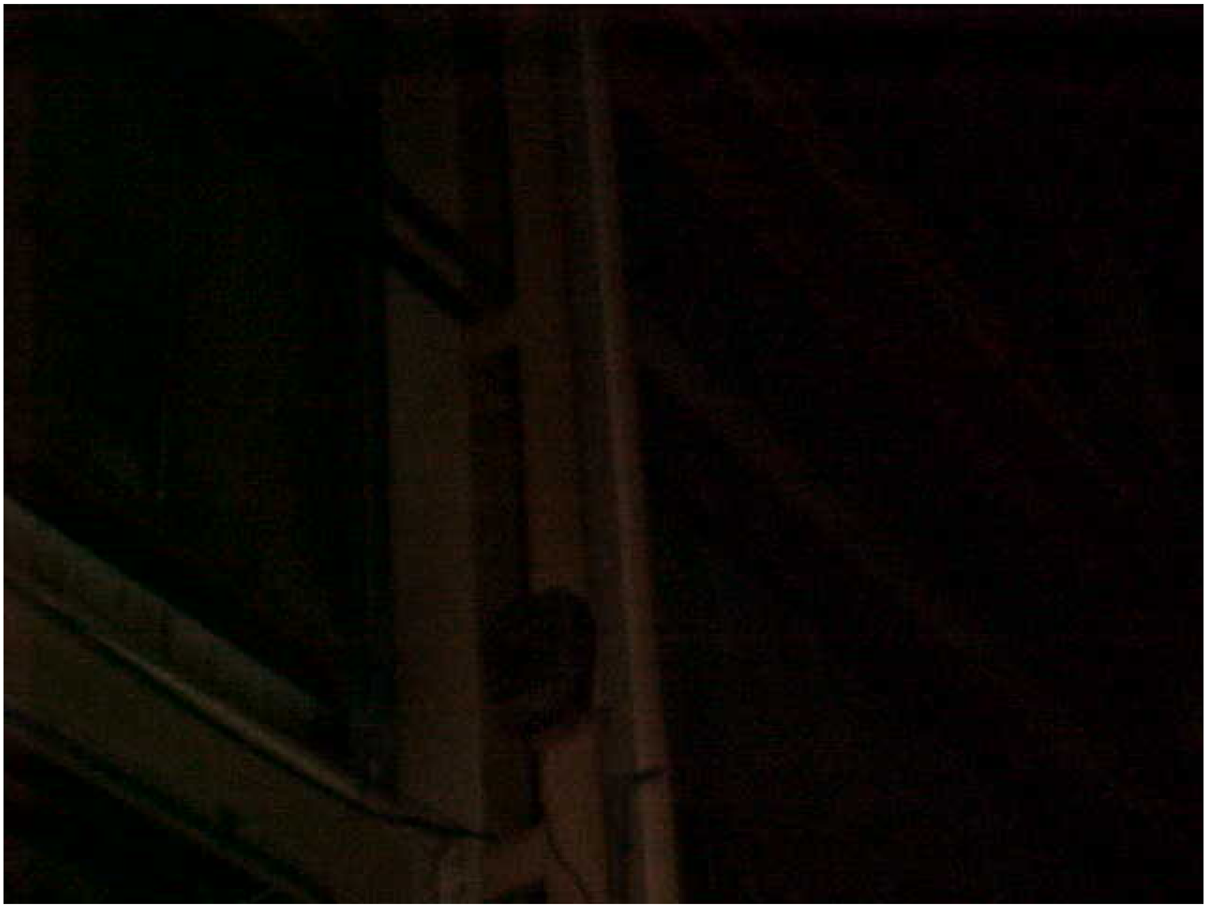
NPW-070

NPW-071

NPW-072

NPW-073

NPW-074



NPW-076

NPW-077

NPW-078

NPW-080

PW-001

PW-002

PW-003

PW-004

PW-005

PW-006

PW-007

PW-008

PW-009

PW-010

PW-011

PW-012

PW-013

PW-014

PW-015

PW-016

PW-017

PW-018

PW-019

PW-020

PW-021

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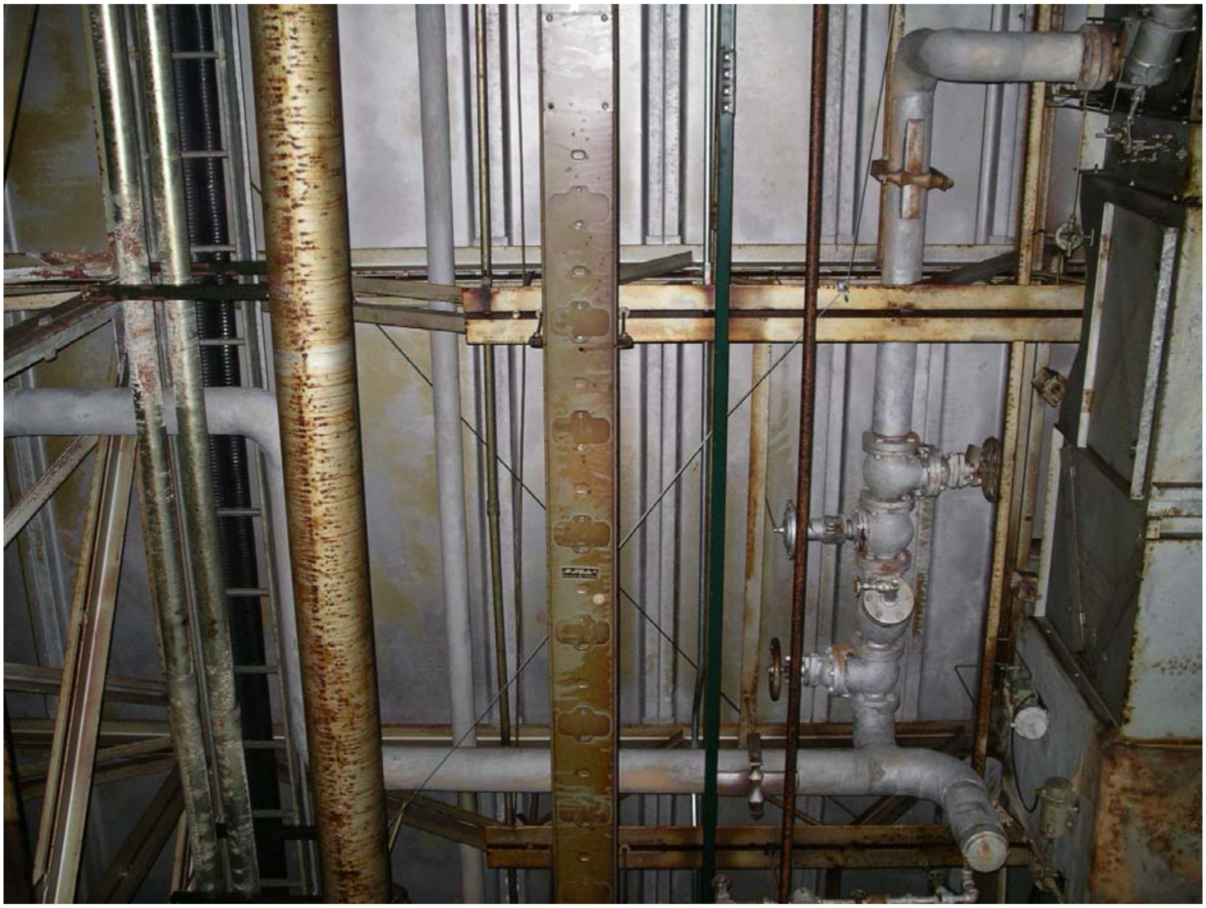
PW-031

PW-032

PW-033



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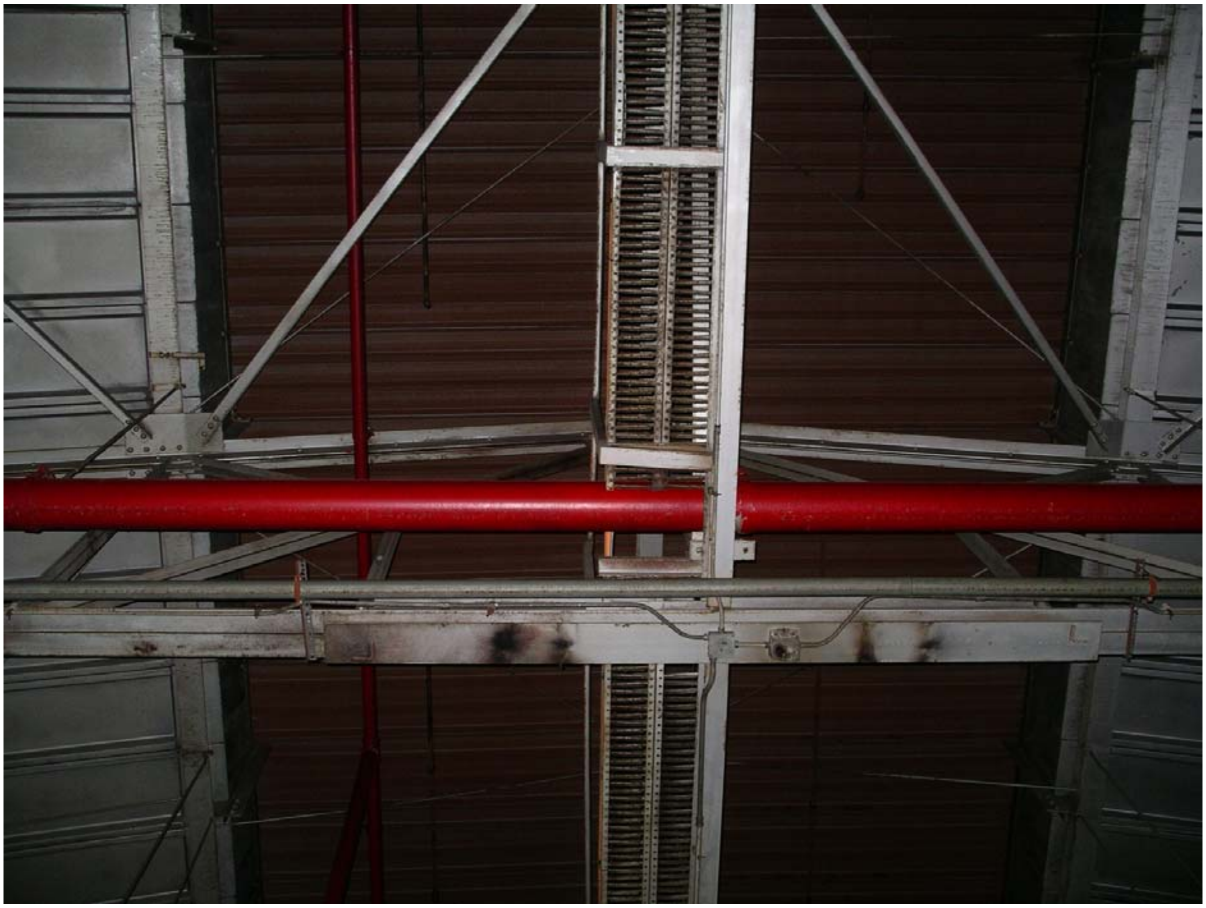
PW-035

PW-036

PW-037


PW-038



PW-039

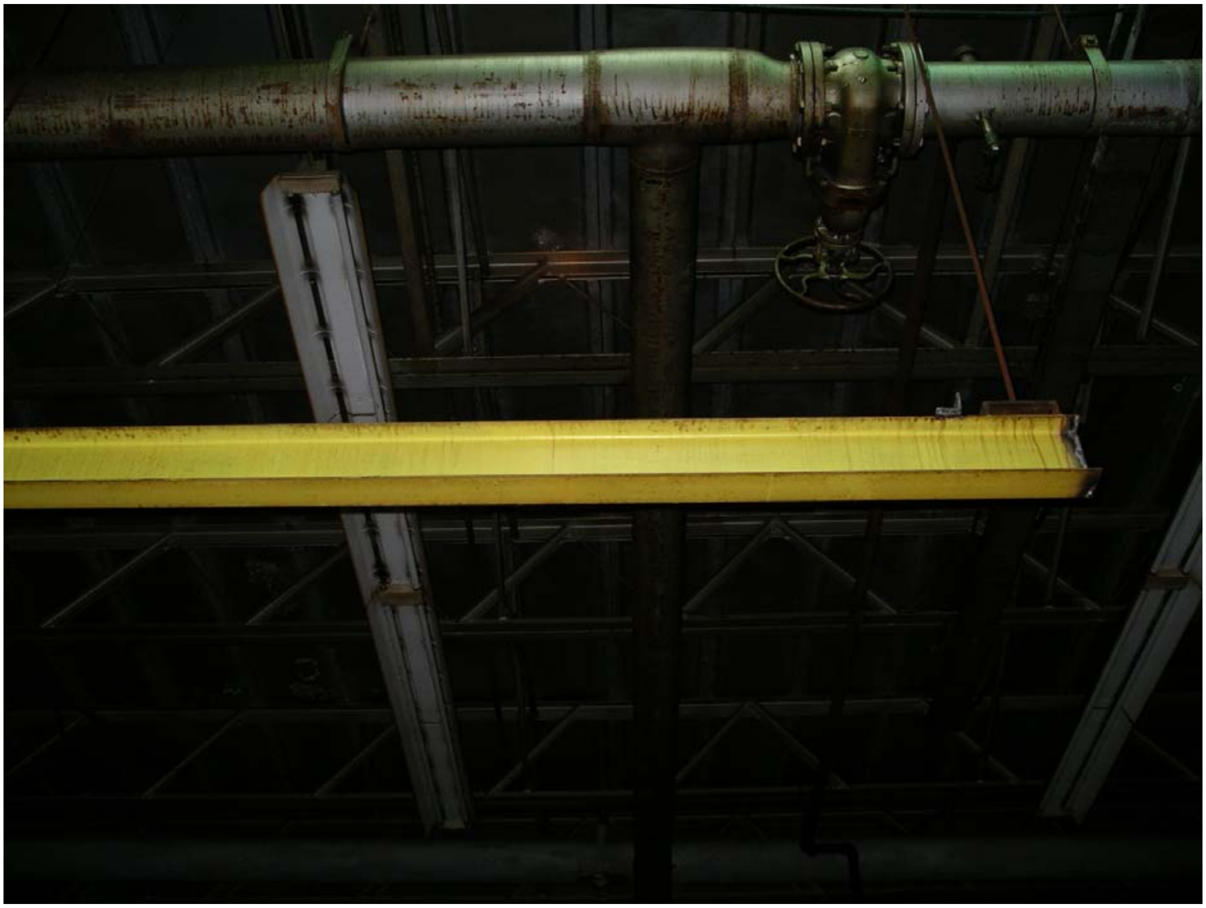
PW-040

PW-041

PW-042

PW-043

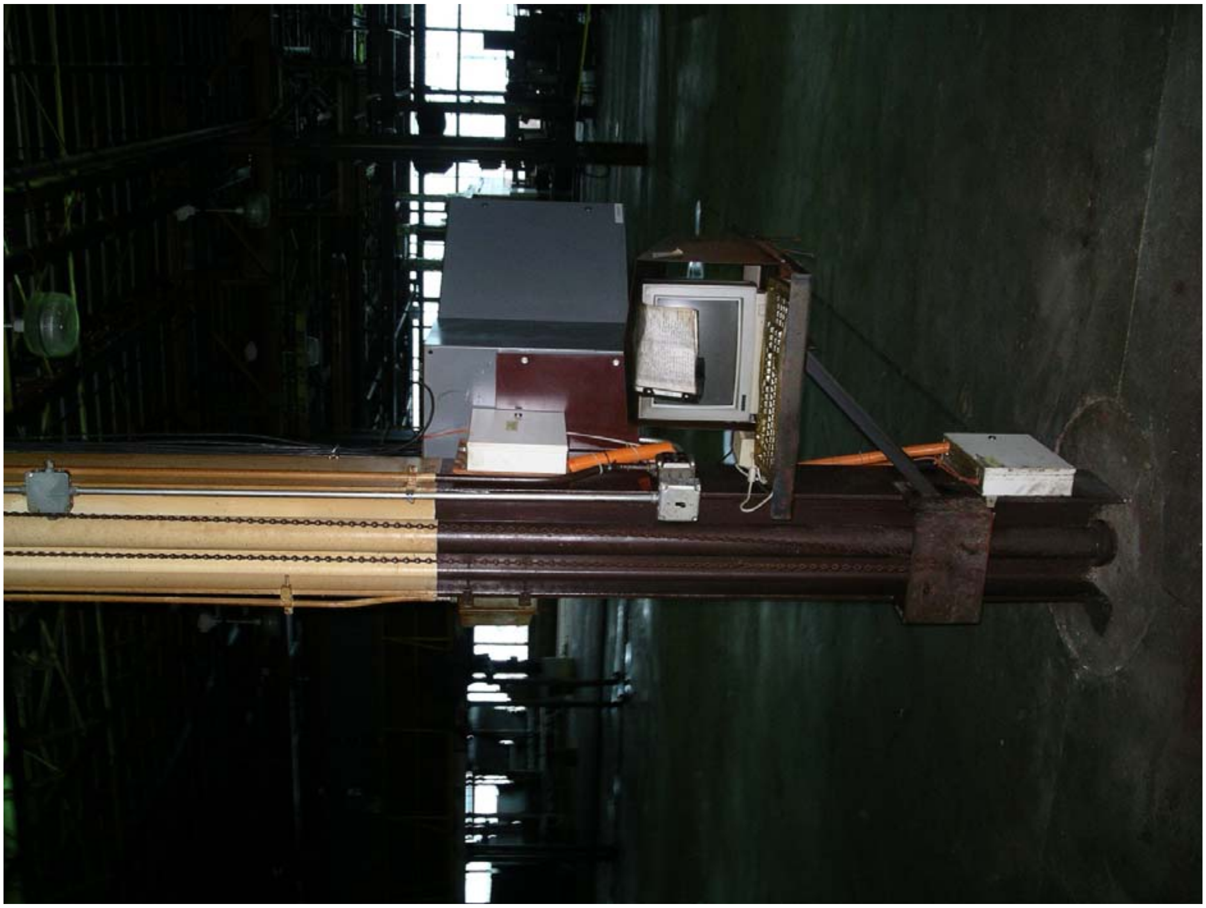
PW-044



PW-045

PW-046

PW-047



PW-048

PW-049

PW-050

PW-051

PW-052

PW-053

PW-054

PW-055

PW-056

PW-057

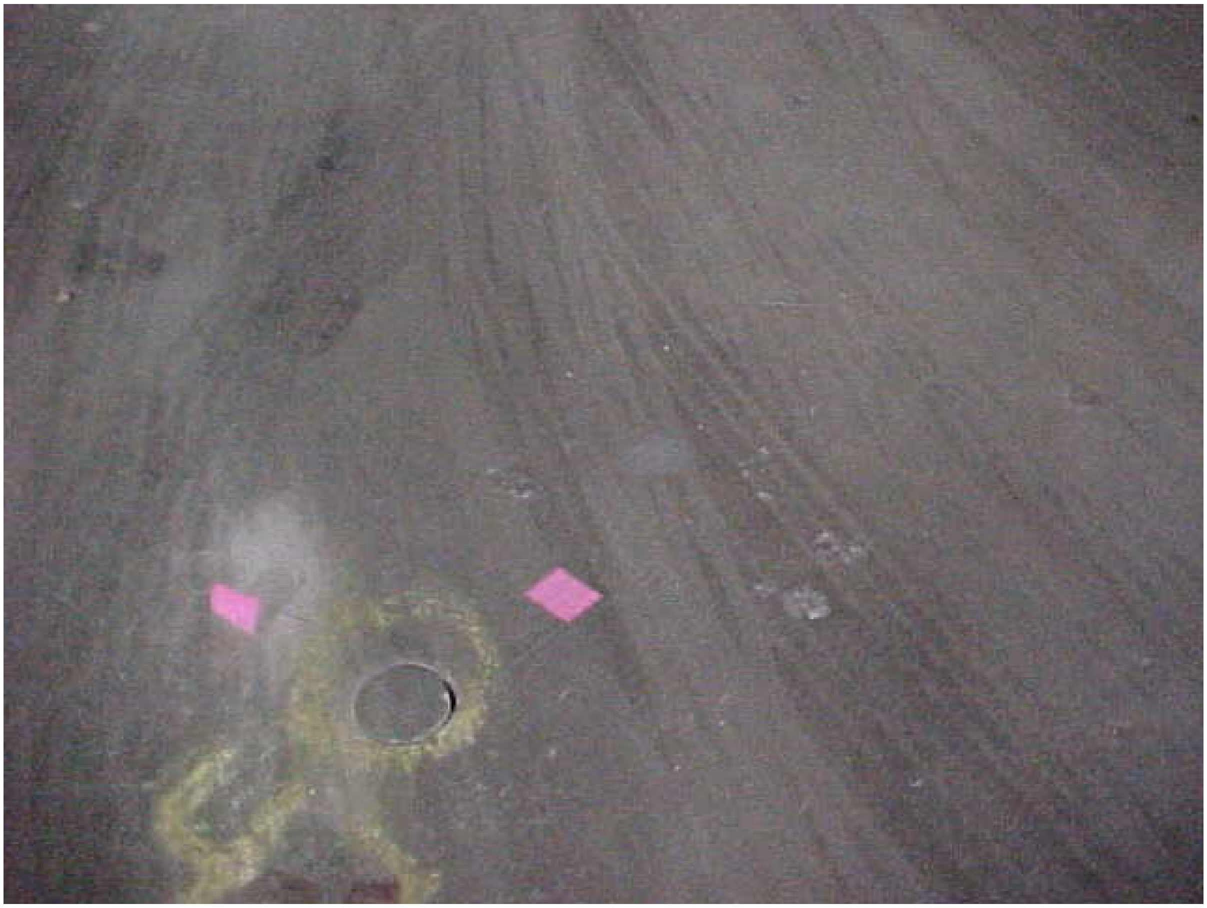
PW-058

PW-059

PW-060

PW-061

PW-062



PW-063

PW-064

PW-065

Indoor Air and Soil Gas Sampling
OMC Plant 2 (Operable Unit 4), Waukegan, Illinois
WA No. 237-RICO-0528, Contract No. 68-W6-0025

PREPARED FOR: Kevin Adler/USEPA

PREPARED BY: CH2M HILL

DATE: October 13, 2005

Introduction

This memorandum documents the indoor air and soil gas sampling activities conducted as part of the Remedial Investigation (RI) at the Outboard Marine Corporation (OMC) Plant 2 site in Waukegan, Illinois. The samples were collected on February 23, 2005, at select offsite locations on the Larsen Marine property, a commercial business located south of Seahorse Drive.

Elevated groundwater concentrations of chlorinated volatile organic compounds (CVOCs) have been detected beneath OMC Plant 2. The groundwater data indicate a CVOC plume may be migrating to the south toward Larsen Marine and Waukegan Harbor. Samples of indoor air and soil gas were collected on the Larsen Marine property in order to determine if volatilization of CVOCs from groundwater could result in inhalation exposures.

This memorandum includes the following:

- Description of specific field activities performed including locations and sampling methodology
- A summary of the samples collected

Equipment and Materials

Indoor air and soil gas samples were collected in SUMMA canisters set up onsite immediately before the start of sampling. The samples were analyzed using USEPA Method TO-15 for volatile organic compounds (VOCs) in air. Severn Trent Laboratories of Colchester, Vermont, supplied the canisters and flow controllers, and performed the analyses.

Flow controllers used for indoor air samples were the “non-variable” type which provided a fixed flow rate to achieve a sample time of approximately 8 hours. Soil gas samples were instantaneous grab samples collected without flow controllers.

Indoor Air Sampling

Sample Locations

A total of four indoor air samples and one background sample were collected at the Larsen Marine property. The Field Sampling Plan proposed that samples be collected from within each of the main buildings on the Larsen Marine property. A reconnaissance of the buildings was conducted prior to sampling to identify the buildings with VOC-generating activities such as painting or degreasing, or without visible defects in the floor where soil gas intrusion could occur. Based on the site reconnaissance, the "I/O" Building and Building "H" were selected because visible defects were observed in the floor, and there were no odors or activities indicative of potential compromises to air quality (Figure 1). The sample locations included:

- Three samples from locations in the "I/O" Building (Figure 2)
- One sample from Building "H" (Figure 3)
- One background sample was located outdoors about 75 feet southwest of Building "C," which was upwind of the study area at the start of the sampling (Figure 4)

The "I/O" Building

The "I/O" Building, which measures approximately 90 feet by 140 feet, is used primarily for boat storage. Two samples, OMC-AA001 and OMC-AA003, were collected from cracks in the floor in the center isle of the building (see Figure 2). Since the building also contained two diesel powered fork lifts, a gasoline powered snow blower (in the southwest corner), and two aboveground diesel fuel storage tanks (in the southeast corner), a third sample, OMC-AA002, was collected at a height of about 5 feet above the floor to help assess ambient sources apart from possible intrusion points. The building is not well sealed and there are large sliding doors on the southern wall that were closed during sampling. There were no repair or maintenance activities conducted in the building during the sample period.

Building "H"

Building "H," which measures approximately 30 feet by 90 feet, is also used for boat storage. One sample, OMC-AA004, was collected from a crack in the floor in the central interior of the building (Figure 3). The building is not well sealed and there are large sliding doors on the southern wall that were closed during sampling. There were no apparent sources of potential contamination observed and there were no repair or maintenance activities conducted in the building during the sample period.

Procedures

Setup for a typical indoor air sample included removal of the protective end-cap from the inlet port, installation of a flow controller and particulate filter, reinstallation of the protective end-cap over the flow controller, and opening/closing the canister valve to obtain an initial vacuum reading. This reading was compared to the reading reported by the laboratory before shipment to the site. After transporting the canister to the sample site, the protective end cap was removed, a small section of fresh Teflon® tubing was attached to the inlet port, the open end of the tubing was placed in position, and the valve was opened. After sampling was completed, a final vacuum reading was obtained, the valve was closed, the flow controller and filter were removed, and the canister was sealed with a protective end-cap.

Soil Gas Sampling

Sample Locations

Five soil gas locations were selected, based on the results from previous investigations and the Membrane Interface Probe investigation, to provide spatial coverage across the groundwater plume beneath the Larsen Marine property. The sample locations include:

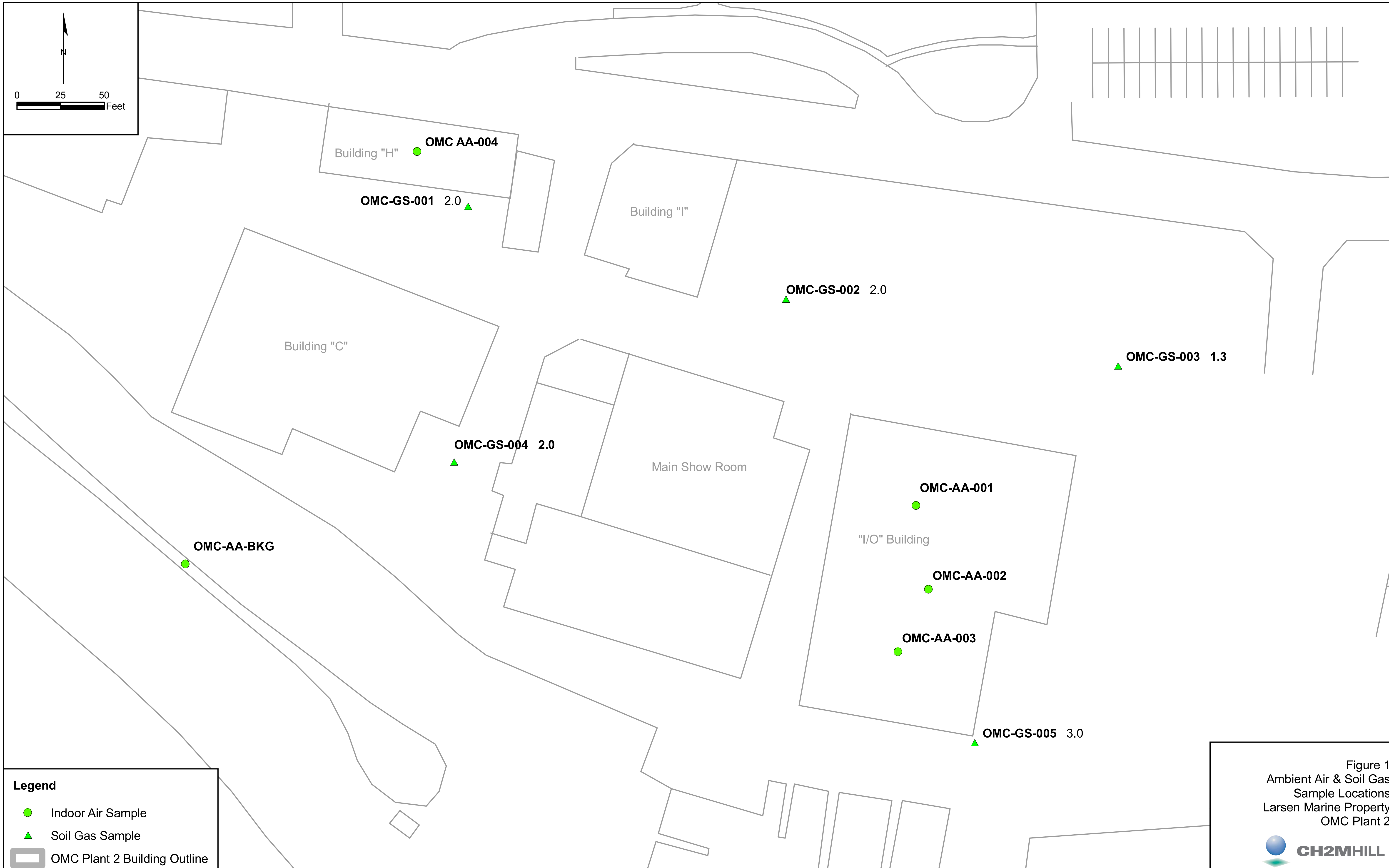
- OMC-GS001 was collected approximately 20 feet from Building 5 in the second vehicle parking space from east along the southern portion of Building "H."
- OMC-GS002 was collected near the painted line between the third and forth boat storage spaces east of Building "I" near the vehicle parking area.
- OMC-GS003 was collected roughly 200 feet east of OMC-GS002 in the boat storage area near vehicle parking, northeast and across the road from the eastern corner of the "I/O" Building.
- OMC-GS004 was collected between Building "C" and the main showroom/customer service building.
- OMC-GS005 was collected near the southeast corner of the "I/O" Building.

Procedures

Soil gas samples were collected from above the water table using direct push techniques. With the sample probe driven to the appropriate depth above groundwater, the SUMMA canister assembly was fitted with a section of Teflon® tubing and attached to the end-nut fitting on the Geoprobe® section, and the valve was opened to collect the sample. New sections of Teflon® tubing were used at each sample location to prevent cross-contamination. Leak checks, as well as a system purge, were conducted before soil gas sample collection. Sampling was at a flow rate of between 100 to 200 milliliters/min and terminated when the canister vacuum reached approximately 3–5 in/Hg.

Reference

CH2M HILL. 2004. *Field Sampling Plan, OMC Plant 2, Waukegan, Illinois, Final*. November.



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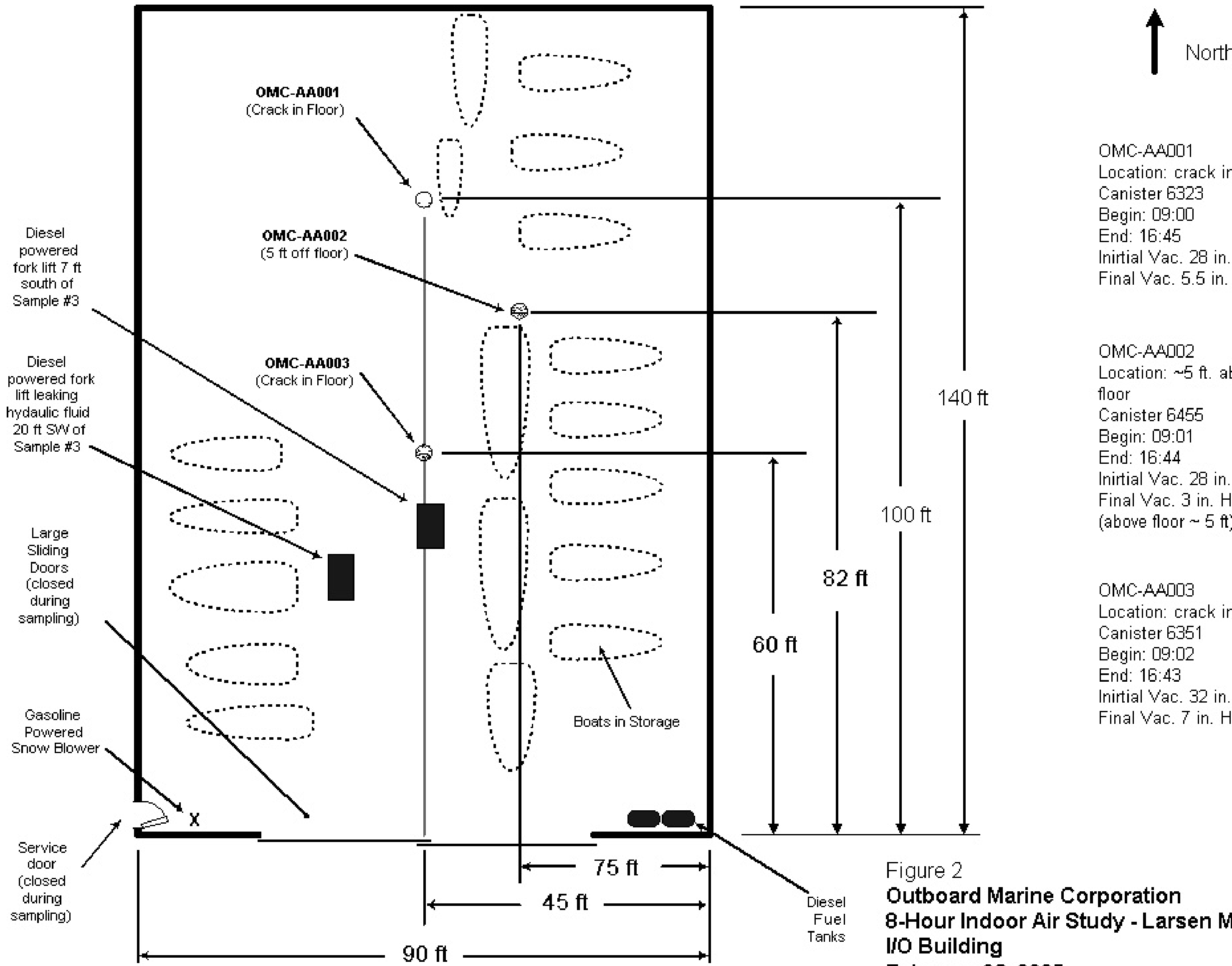
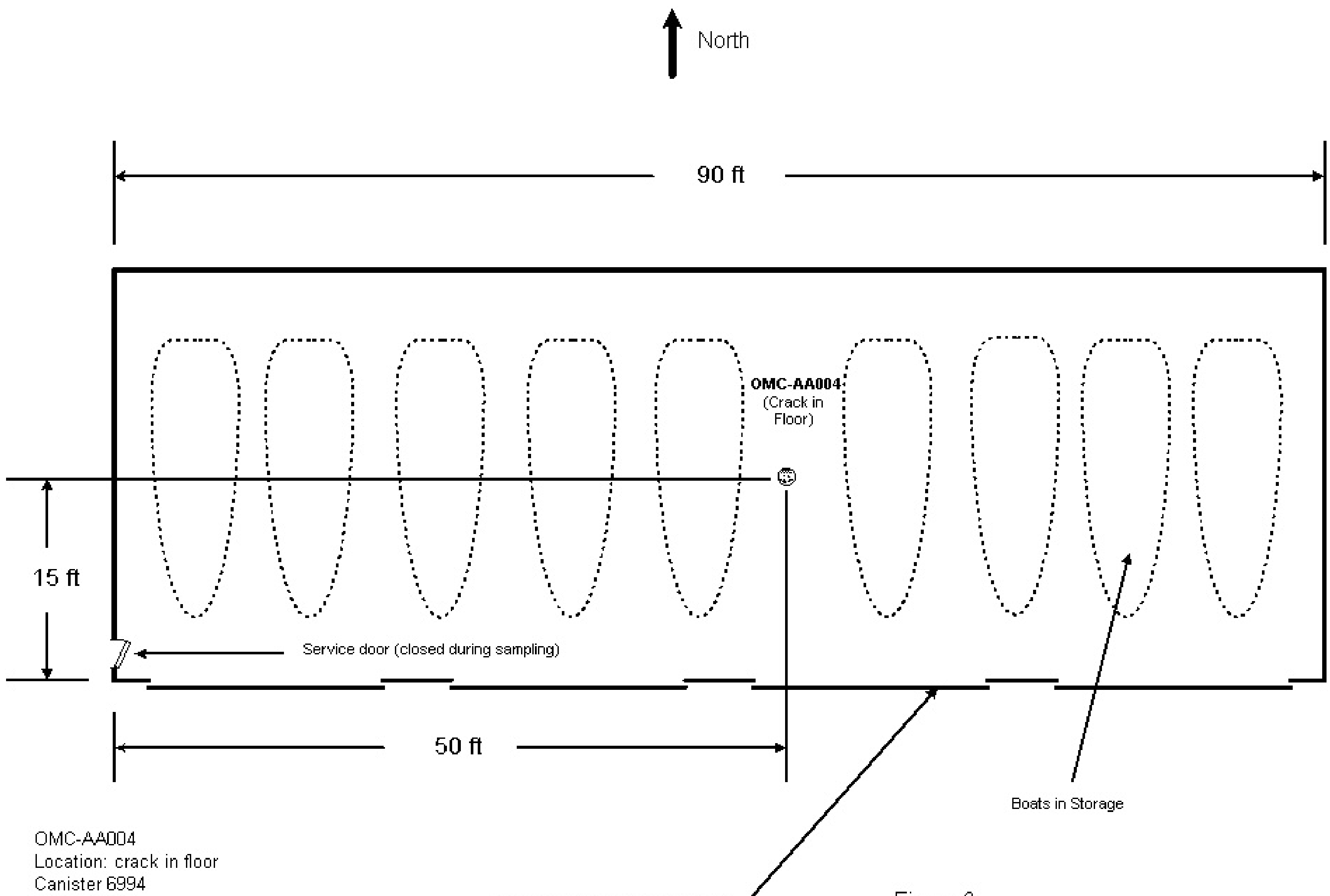


OMC-AA001
Location: crack in floor
Canister 6323
Begin: 09:00
End: 16:45
Inirtial Vac. 28 in. Hg
Final Vac. 5.5 in. Hg

OMC-AA002
Location: ~5 ft. above floor
Canister 6455
Begin: 09:01
End: 16:44
Inirtial Vac. 28 in. Hg
Final Vac. 3 in. Hg
(above floor ~ 5 ft)

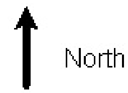
OMC-AA003
Location: crack in floor
Canister 6351
Begin: 09:02
End: 16:43
Inirtial Vac. 32 in. Hg
Final Vac. 7 in. Hg

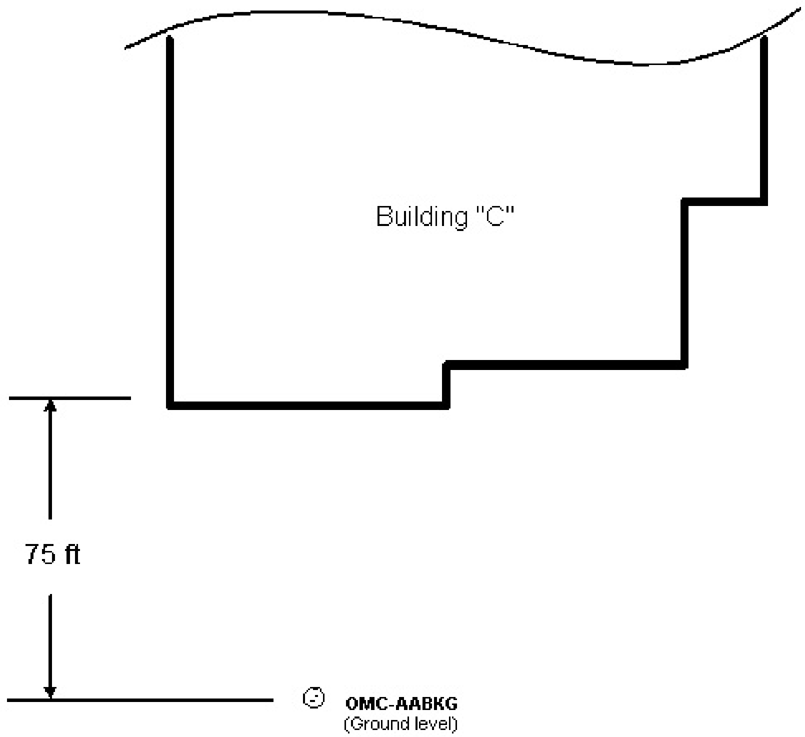
Figure 2
Outboard Marine Corporation
8-Hour Indoor Air Study - Larsen Marina
I/O Building
February 23, 2005



OMC-AA004
Location: crack in floor
Canister 6994
Begin: 09:07
End: 16:38
Inirtial Vac. 29 in. Hg
Final Vac. 3 in. Hg

Figure 3
Outboard Marine Corporation
8-Hour Indoor Air Study - Larsen Marina
"H" Building
February 23, 2005





OMC-AABKG
Location: 75 ft south of Bldg "C" ~1.5 ft. above ground
Canister 6556
Begin: 09:04
End: 16:41
Inirtial Vac. 29 in. Hg
Final Vac. 6 in. Hg

Wind Direction

09:00	WSW @ 7 mph
10:00	WSW @ 6 mph
11:00	Variable @ 6 mph
12:00	Variable @ 6 mph
13:00	WNW @ 7 mph
14:00	ENE @ 7 mph
15:00	NE @ 7 mph
16:00	ENE @ 8 mph
17:00	ENE @ 5 mph

Figure 4
Outboard Marine Corporation
8-Hour Indoor Air Study - Larsen Marina
Outdoor Background Sample
February 23, 2005

Soil and Sediment Investigation
OMC Plant 2 (Operable Unit 4), Waukegan, Illinois
WA No. 237-RICO-0528, Contract No. 68-W6-0025

PREPARED FOR: USEPA

PREPARED BY: CH2M HILL

DATE: October 13, 2005

Introduction

This memorandum documents the activities associated with Soil and Sediment Investigation completed at part of the Remedial Investigation (RI) at the Outboard Marine Corporation Plant 2 (OMC Plant 2) site in Waukegan, Illinois. The investigation activities were conducted between November 16, 2004, and March 31, 2005, and included sediment probing in the North Ditch and South Ditch, the collection of unsaturated and saturated soils from beneath and outside the plant, and sampling to delineate the extent of dense nonaqueous-phase liquids (DNAPL).

This memorandum includes the following:

- Description of specific field activities performed, including locations, methods, and deviations from the site-specific plans
- A summary of the samples collected and requested analyses
- An evaluation of sediment volumes within the North and South Ditches
- Boring logs describing materials encountered at each location (included as Attachment 1)

Sediment Investigation

As described in the *Field Sampling Plan* (FSP; CH2M HILL, 2005), the sediment investigation was limited to probing the North and South Ditches to determine the volume of sediments.

Sediment probing was conducted by wading and probing to measure the width and thickness of sediments along transects spaced at 300-foot intervals in the North Ditch and South Ditch. The thickness of the soft sediment was determined by pushing a range pole equipped with a metal tip and steel shaft to refusal. Each of the transects included three measurements, one at each bank near the sediment/water interface and one at the approximate center of the ditch. The sediment thickness at each transect was recorded and the transect location was marked for surveying at a later date. A total of 11 transects, 9 in the North Ditch and 2 in the South Ditch, were investigated (Figure 1). The results of the sediment thickness measurements along each transect and the estimated sediment volume for the North and South Ditch are presented in Tables 1 and 2, respectively. The total sediment volumes were estimated to be 3,477 cubic yards in the North Ditch and 731 cubic yards in the South Ditch.

Soil Investigation

Data Collection Objectives

The soil investigation activities included soil boring and collection of unsaturated and saturated samples from beneath and outside of the building. The soil investigation was limited and focused to fill data gaps identified based on the results from previous investigations. The data collection objectives for different areas of the site are as follows:

- Determine the nature and extent of soil contamination, including carcinogenic polynuclear aromatic hydrocarbons (CPAHs) and polychlorinated biphenyls (PCBs) in the Former Die Cast Underground Storage Tank/Aboveground Storage Tank (UST/AST) area located east of building
- Collect soil samples from the vicinity of the PCB AST area and parking lot areas north of the building to evaluate direct-contact risk
- Collect soil samples from the vicinity of the grassy area on the south side of the building to confirm soils in the area do not pose a direct-contact risk
- Define nature and extent of soils potentially contaminated with DNAPL
- Determine contaminant concentrations in soil beneath the building at select groundwater investigation locations and correlate the membrane interface probes (MIPs) responses to soil concentrations
- Characterize the lithologic and geotechnical properties of site soils (e.g., grain size, bulk density, porosity, moisture content, total organic carbon, soil oxidant demand, etc.) that will be used in the evaluation of contaminant fate and transport, risk, and remedial alternatives

Sampling Procedures

The soil samples were collected using direct push methods by Innovative Probing Solutions (IPS) of Mt. Vernon, Illinois. Soil samples were continuously sampled using a Geoprobe® macrocore sampler with a disposable acetate liner. Sampling equipment was decontaminated in accordance with FOP-17, *Decontamination of Drilling Rigs and Equipment.* A photoionization detector (PID) and combustible gas indicator were used to monitor air quality during field activities for worker health and safety.

The soil samples were logged using the ASTM D-2487, Unified Soil Classification System and were screened for organic vapors using a PID. Observations during sampling activities, including PID readings, soil staining, odors, and sheen, were also noted on the soil boring logs. Boring location coordinates (northing and easting) were determined measuring the position from known survey locations with a measuring tape. The soil boring logs are included in Attachment 1.

A summary of the samples collected and the analysis performed is provided in Table 3. Samples analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, and metals were submitted to a laboratory in USEPA's Contract Laboratory Program (CLP). Soil samples to be analyzed for total organic carbon (TOC), geotechnical properties (e.g., porosity, bulk density, grain size, and moisture content), and soil oxidant demand (SOD) were sent to CT Laboratory of Baraboo, Wisconsin.

Deviations to the FSP relative to sample collection are as follows:

- Soil samples to be analyzed for VOCs were collected using En Core® samplers rather than 4-ounce jars with methanol preservation.
- Geotechnical samples were collected using Geoprobe® macrocore samplers utilizing direct-push technology rather than hollow-stem augers (HSAs) and split-spoon samplers. Based onsite geology, collecting samples using HSAs and split spoons would be problematic because of the potential for heaving sands.

Investigation Areas

Former Die Cast UST/AST Area

A total of 19 soil samples were collected from 10 soil borings (SO-035 through SO-044) in the Former Die Cast UST/AST area (Figure 2). Unsaturated soil samples were collected from the 0- to 6-inch interval and the 2-foot interval above the water table and submitted to a CLP laboratory to be analyzed for VOCs, SVOCs, and PCBs.

Soil samples were not collected from boring location SO-044 in the northeastern corner of the site because of the presence of engineered fill. The presence of engineered fill at this location may be related to the East Containment Cell that is reported to extend to the eastern fenceline.

PCB Area North of the Plant

A total of 74 soil samples were collected from 35 soil borings (SO-001 through SO-034) completed in the PCB AST area and parking lot areas north of the plant (Figure 2). Surface soil samples were collected from the 0- to 6-inch interval and the 2-foot interval above the water table, and submitted to a CLP laboratory to be analyzed for VOCs, SVOCs, and PCBs.

Grassy Area Surrounding Corporate Building

Twelve unsaturated soil samples were collected from 6 soil borings (SO-050 through SO-055) in the grassy area south of the plant and adjacent to the Corporate Building (Figure 2). Surface soil samples were collected from the 0- to 6-inch interval and the 2-foot interval above the water table, and submitted to a CLP laboratory to be analyzed for VOCs, SVOCs, and PCBs.

Groundwater Contamination Locations Beneath Plant 2

A total of 26 soil samples were collected from 8 soil borings (SO-067 through SO-071, and SO-080 through SO-082) completed beneath the building (Figure 3). The soil sample locations were selected based on the results from the MIP investigation.

The FSP specified that each boring would have analytical and geotechnical samples collected from three depth intervals: the 0- to 4-foot interval (estimated depth of unsaturated zone), the top of aquifer, and the bottom of aquifer. The analytical samples would be submitted to the CLP for VOC, SVOC, and PCB analyses. Soil samples for TOC, SOD, and geotechnical properties were submitted to CT Laboratory for analysis. The limited sample recovery and the presence of fill materials required the following adjustments to be made in the sampling approach:

- SO-067—The shallowest analytical and geotechnical samples were collected at depth intervals of 4.5 to 5.0 and 5.0 to 6.0 feet, respectively. The 0- to 4-foot interval was not sampled because of the presence of fill materials. The samples were collected as close to the native soils and water table (6 feet below ground surface [bgs]) as possible. In addition, the sample recovered from the bottom of the aquifer was insufficient to collect an analytical sample.

- SO-068—A geotechnical sample was not collected from the bottom of aquifer because of limited sample recovery. The analytical sample from the bottom of the aquifer was deemed more essential for site remedial objectives because of the presence of possible impacted materials based on olfactory evidence.

- SO-069—A geotechnical sample was not collected from 0 to 4 feet but from 4 to 5.5 feet, because of the presence of fill materials and to obtain a sample within the unsaturated zone just above the water table.

- SO-070—The analytical and geotechnical samples were collect from below 0 to 4 feet (3.3 to 4.5 feet bgs and 4.5 to 5.5 feet bgs) because of the presence of possible impacted materials, as indicated by elevated photoionization detector (PID) readings from samples just above the water table at 5.5 feet bgs.

- SO-071—The analytical sample was taken below 0 to 4 feet bgs because of the presence of fill to 1.1 feet bgs. The limited unsaturated native soil sample interval for analytical and geotechnical use influenced the decision to take the analytical sample from 4 to 5 feet bgs, still within the unsaturated zone of the aquifer.

- SO-081—The analytical sample was taken below 0 to 4 feet bgs because of the presence of fill to 4.0 feet bgs. The limited unsaturated native soil sample interval for analytical and geotechnical use influenced the decision to take the analytical sample from 4 to 4.9 feet bgs, within the unsaturated zone of the aquifer.

- SO-082—The analytical and geotechnical samples were collected below 0 to 4 feet bgs because of the presence of fill material and depth to water table of 6.1 feet. The samples were collected as close to the water table as possible within the unsaturated zone of the aquifer.

- Samples for geotechnical properties were collected from beneath the building at eight of the ten boring locations originally proposed in the FSP. A ninth location beneath the western portion of the plant was not completed because of utilities and subsurface obstructions at depth. The tenth location was eliminated based on the spatial coverage of the sampling conducted, and was utilized as an additional location outside the building.

Soil Sampling at New Monitoring Well Locations

Additional lithologic and geotechnical characterization were conducted by collecting unsaturated and saturated soil samples from borings conducted for the installation of new monitoring wells outside the building. Soil analytical samples were collected from 14 soil borings at new monitoring well locations (SO-061 through SO-066 and SO-072 through SO-079). At each new monitoring well location, three soil samples were collected—one each from the unsaturated zone, the top of the aquifer, and the bottom of the aquifer. These samples were collected from a direct-push Geoprobe® macrocore sampler and not hollow stem augers and split–spoon samplers specified in the FSP. Based onsite geology (i.e., heaving sands), the direct-push Geoprobe® macrocore sampler was more suited for sample collection. Soil samples were sent to the CLP to be analyzed for VOCs, SVOCs, and PCBs. The samples were also submitted to CT Laboratory to be analyzed for TOC, grain size, porosity, and bulk density to evaluate transport properties in the unsaturated zone and the groundwater flow and transport characteristics of the aquifer.

As discussed above, the FSP specified that each boring would have analytical and geotechnical samples collected from three depth intervals. The limited sample recovery and the presence of fill materials required the following adjustments to be made in the sampling approach.

- SO-062—Geotechnical samples were not collected from the 0- to 4-foot interval and top of aquifer because of limited sample recovery. Analytical samples were collected, with the limited sample recovered from 0- to 4-foot and top of aquifer intervals, as they were considered more essential for site remedial objectives.
- SO-064—Geotechnical samples were not collected because of visual evidence of contamination. The objective for this monitoring well was to provide an upgradient "background" location (originally planned offsite, northwest of the rail line). Because of visual evidence of contamination at SO-064, the monitoring well location was moved north to SO-065, where analytical and geotechnical samples were collected. The soil samples collected at SO-064 were submitted for VOCs, SVOCs, and PCBs.
- SO-073 was a soil boring for a new monitoring well, replacing monitoring well nested location W-2. The boring was simply logged and not sampled.
- SO-074 was to be analyzed for SOD, but the analysis was inadvertently omitted from the analyte list to the laboratory.
- SO-076 was a soil boring for a new monitoring well, replacing monitoring well nested location W-4. The boring was simply logged and not sampled.
- At SO-078, a geotechnical sample of the unsaturated zone was not collected as the water table was encountered at 0.6 foot bgs. This did not allow sufficient unsaturated sample to be collected for analysis of geotechnical properties by the laboratory (a minimum of 1 foot was required).

Selected Groundwater Investigation Locations

Ten soil analytical samples were collected from 10 soil borings at locations outside and beneath the building (Figure 4). The soil sample locations were selected based on evidence of contamination (e.g., visual, olfactory and MIP results) and to confirm (about 10 percent of locations) MIP results. Confirmation samples were collected to represent both low and high concentration areas to provide a baseline for future sampling and correlate the MIP's response to soil concentration. Samples were collected for VOCs and submitted to a CLP laboratory to be analyzed.

Initially, these soil samples were to be located just beneath the building to correlate the MIP's response to soil concentrations. During the MIPs investigation, it was decided that including locations outside the building would allow correlation over a larger concentration range. Soil borings at select groundwater contamination locations beneath the building were also strategically added, based on the MIP results.

DNAPL Investigation

Analytical results from previous investigations indicate TCE contamination greater than 10 µg/L within the Metal Working Area and areas outside the building near the northwestern portions of the site, and areas just south and west of the Corporate Building. Based on the amount of solvent used at the plant, it was suspected that areas containing TCE concentrations greater than 10 µg/L may include "free product" (i.e., DNAPL). Based on the previous investigation results, a potential DNAPL area was identified beneath the building. A MIP investigation was conducted to define the high TCE concentration areas. The MIP investigation is described in a separate technical memorandum.

Although the MIP investigation did not identify DNAPL beneath targeted areas of the plant, DNAPL was encountered at a location outside the plant. Two soil borings (SO-026 and SO-057) were completed in this area and four soil samples were collected and analyzed for VOCs, and/or SVOCs and PCBs (Figure 2 and Table 1).

Four additional direct-push offset locations within a 50-foot radius of SO-026 and SO-057 were completed to determine the presence of DNAPL (Figure 4). The borings were not logged but were advanced in the subsurface until boring refusal at the till boundary (assumed to be approximately 30.5 feet bgs based on SO-057 refusal). It was assumed the DNAPL would reside at the top of till boundary. A screen-point sampler was then exposed at a 5-foot interval just above the till boundary and groundwater was extracted to check for visual evidence of DNAPL. A foot-valve was also used to purge groundwater for evidence of DNAPL. There was no visual evidence of DNAPL at any of the offset locations.

Reference

CH2M HILL. 2004. *Field Sampling Plan, OMC Plant 2, Waukegan, Illinois, Final*. November.

TABLE 1
Summary of North Ditch Sediment Investigation
OMC Plant 2

North Ditch

Date	Transect	Location ID	Poling X	Poling Y	Water Depth (ft)	Probe Depth (ft)	Sediment Thickness (ft)	Native Clay Not Penetrated	Average Transect Sediment Thickness (ft)	Area Represented By Transect (sq ft)	Transect Volume Estimate (cu yards)	Comments
11/16/2005	ND-T1	ND-T1-A	1122583.280	2078567.010	3.7	6.7	3.0		2.7	2928.0	289.2	compact sand
11/16/2005	ND-T1	ND-T1-B	1122583.280	2078561.560	3.6	6.3	2.7					soft silt/sand/gravel
11/16/2005	ND-T1	ND-T1-C	1122583.280	2078556.600	2.5	4.8	2.3					sand
11/16/2005	ND-T2	ND-T2-A	1122865.910	2078566.500	2.1	3.6	1.5		1.8	5426.0	368.4	
11/16/2005	ND-T2	ND-T2-B	1122865.910	2078560.850	1.8	3.7	1.9					
11/16/2005	ND-T2	ND-T2-C	1122865.910	2078555.480	1.8	3.9	2.1					6" soft silt on top of sand
11/16/2005	ND-T3	ND-T3-A	1123165.900	2078566.360	1.8	6.9	5.1		4.1	5910.0	897.4	soft silt/sand/refusal
11/16/2005	ND-T3	ND-T3-B	1123165.900	2078560.280	1.7	6.3	4.6					soft silt/sand/refusal
11/16/2005	ND-T3	ND-T3-C	1123165.900	2078554.910	1.7	4.3	2.6					compact sand
11/16/2005	ND-T4	ND-T4-A	1123466.870	2078563.530	2.4	6.0	3.6		1.5	4795.0	260.5	soft silt/compact sand
11/16/2005	ND-T4	ND-T4-B	1123466.870	2078559.151	2.4	3.2	0.8					sand/gravel
11/16/2005	ND-T4	ND-T4-C	1123466.870	2078554.912	0.0	0.0	0.0					Rip rap
11/16/2005	ND-T5	ND-T5-A	1123766.850	2078560.560	2.8	6.3	3.5		1.9	3216.0	222.3	soft silt/sand/refusal
11/16/2005	ND-T5	ND-T5-B	1123766.850	2078557.310	2.4	4.5	2.1	**X**				soft silt/compact sand/ no refusal
11/16/2005	ND-T5	ND-T5-C	1123766.850	2078554.210	0.0	0.0	0.0					Rip rap
11/16/2005	ND-T6	ND-T6-A	1124067.400	2078558.730	2.7	5.4	2.7		1.3	3275.0	157.7	soft silt/sand/refusal
11/16/2005	ND-T6	ND-T6-B	1124067.400	2078555.620	2.4	3.6	1.2	**X**				soft silt/very dense sand/no refusal
11/16/2005	ND-T6	ND-T6-C	1124067.400	2078552.510	0.0	0.0	0.0					Rip rap
11/16/2005	ND-T7	ND-T7-A	1124426.710	2078561.300	0.9	2.8	1.9	**X**	2.3	7156.0	600.8	sand/very dense sand/no refusal
11/16/2005	ND-T7	ND-T7-B	1124419.100	2078553.810	1.2	3.1	1.9	**X**				soft silt/very dense sand/no refusal
11/16/2005	ND-T7	ND-T7-C	1124412.090	2078546.680	0.7	3.7	3.0	**X**				soft/sand lense/sand/no refusal
11/16/2005	ND-T8	ND-T8-A	1124560.790	2078354.655	1.4	2.7	1.3		1.4	7334.0	389.3	soft silt/compact sand/refusal?
11/16/2005	ND-T8	ND-T8-B	1124552.485	2078350.125	1.4	2.9	1.5					soft silt/compact sand/refusal?
11/16/2005	ND-T8	ND-T8-C	1124544.410	2078345.721	1.4	2.9	1.5					soft silt/compact sand/refusal?
11/16/2005	ND-T9	ND-T9-A	1124662.158	2078169.280	1.5	2.8	1.3		1.1	6947.0	291.6	soft silt/dense sand/refusal
11/16/2005	ND-T9	ND-T9-B	1124654.299	2078164.104	1.5	2.8	1.3					soft silt/dense sand/refusal
11/16/2005	ND-T9	ND-T9-C	1124647.092	2078159.480	1.3	2.1	0.8					soft silt/compact sand/refusal
											3477.2	**Total Volume (cubic yards)**

Notes:
a. "ft" = feet
b. "sq ft" = square feet
c. "cu yards" = cubic yards
d. **'X'** in "no native clay penetrated" column denotes that manually driven sediment pole reached refusal (compact sands, etc.) but did not reach native clay interface.
e. Transect locations were determined using survey coordinates and aerial photograph reference. ND-T8 and ND-T9 were located using an aerial photograph only.
f. Transect ND-T7's surveyed location did not correlate with field records and therefore was not used. Location was located using an aerial photo.

TABLE 2
Summary of South Ditch Sediment Investigation
OMC Plant 2

South Ditch

Date	Transect	Location ID	Poling X	Poling Y	Water Depth (ft)	Probe Depth (ft)	Sediment Thickness (ft)	Native clay not penetrated	Probe Depth (ft)	Average Transect Sediment Thickness (ft)	Area Represented By Transect (sq ft)	Transect Volume Estimate (cu yards)	Comments
11/16/2005	SD-T1	SD-T1-A	1124011.19	2077279.5	0.6	4.6	4.0		4.6	4.6	1955.0	335.5	mostly soft silt/sand
11/16/2005	SD-T1	SD-T1-B	1124008.18	2077267.43	1.4	3.8	2.4	**X**	3.8				soft silt/compact sand/no refusal
11/16/2005	SD-T1	SD-T1-C	1124005.59	2077256.88	0.8	5.5	4.7		5.5				mostly soft silt/sand/refusal?
11/16/2005	SD-T2	SD-T2-A	1124067.65	2077270.23	0.6	5.4	4.8		5.4	5.7	1883.0	395.2	mostly soft silt/sand/refusal
11/16/2005	SD-T2	SD-T2-B	1124067.65	2077260.75	0.8	5.6	4.8		5.6				mostly soft silt/sand/refusal?
11/16/2005	SD-T2	SD-T2-C	1124067.65	2077252.35	1.1	6.0	4.9		6.0				mostly soft silt/sand/refusal?
												730.7	**Total volume (cu yards)**

Notes:
a. "ft" = feet
b. "sq ft" = square feet
c. "cu yards" = cubic yards
d. **'X'** in "no native clay penetrated" column denotes that manually driven sediment pole reached refusal (compact sands, etc.) but did not reach native clay interface.
e. Transect locations were determined using survey coordinates and aerial photograph reference. Transect SD-T2 was located using an aerial photograph only.

TABLE 3
Soil Investigation Sample Summary
OMC Plant 2

Location Identifier	Location Type	Date Logged/Sampled	Analytical Sample Intervals (ft bgs)	Geotechnical Sample Intervals (ft bgs)	Analyses							MIP Location
					VOCs	PAHs/ SVOCs	Pesticides/PCBs	TAL Metals/ Cyanide	TOC	SOD	Geotech	
Former Die Cast UST/AST Area												
SO-035	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					
		02/08/2005	1.0 - 2.0		X	X	X					
SO-036	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					MIP-062
		02/08/2005	1.0 - 2.0		X	X	X					
SO-037	Soil Boring	02/09/2005	0.0 - 0.5		X	X	X					
		02/09/2005	1.0 - 2.0		X	X	X					
SO-038	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					
		02/08/2005	1.0 - 2.0		X	X	X					
SO-039	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					
		02/08/2005	0.6 - 1.3		X	X	X					
SO-040	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					
		02/08/2005	1.5 - 2.0		X	X	X					
SO-041	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					MIP-040
		02/08/2005	1.4 - 2.4		X	X	X					
SO-042	Soil Boring	02/08/2005	0.0 - 0.5		X	X	X					
		02/08/2005	1.5 - 2.5		X	X	X					
SO-043	Soil Boring	02/09/2005	0.0 - 0.5		X	X	X					
		02/09/2005	2.8 - 3.0		X	X	X					
SO-044	Soil Boring	2/9/2005	NA									
SO-066	Soil Boring	03/16/2005	0.5 - 1.0	1.0 - 2.0					X		X	MIP-040
		03/16/2005	4.5 - 5.5	5.0 - 6.5					X		X	
		03/16/2005	28.0 - 29.0	29.0 - 30.0					X		X	
SO-073	Soil Boring	3/23/2005	NA									
PCB AST Area and Parking Lot Areas North of the OMC Plant 2												
SO-001	Soil Boring	02/02/2005	0.0 - 0.5		X	X	X					
		02/02/2005	0.7 - 1.6		X	X	X					
SO-002	Soil Boring	02/02/2005	0.0 - 0.5		X	X	X					
		02/02/2005	0.5 - 1.3		X	X	X					
SO-003	Soil Boring	01/31/2005	0.0 - 0.5		X	X	X					
		01/31/2005	1.5 - 2.0		X	X	X					
SO-004	Soil Boring	02/02/2005	0.0 - 0.5		X	X	X					
		02/02/2005	0.6 - 1.4		X	X	X					
SO-005	Soil Boring	02/02/2005	0.0 - 0.5		X	X	X					
		02/02/2005	2.0 - 2.5		X	X	X					
SO-006	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					
		02/07/2005	0.7 - 0.8		X	X	X					
SO-007	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					
		02/07/2005	0.7 - 1.4		X	X	X					
SO-008	Soil Boring	01/31/2005	0.0 - 0.5		X	X	X					
		01/31/2005	1.5 - 2.5		X	X	X					
SO-009	Soil Boring	01/31/2005	0.0 - 0.5		X	X	X					
		01/31/2005	1.5 - 2.5		X	X	X					
SO-010	Soil Boring	01/31/2005	0.0 - 0.5		X	X	X					
		01/31/2005	1.5 - 2.5		X	X	X					
SO-011	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					
		02/07/2005	1.2 - 1.9		X	X	X					

TABLE 3
Soil Investigation Sample Summary
OMC Plant 2

Location Identifier	Location Type	Date Logged/Sampled	Analytical Sample Intervals (ft bgs)	Geotechnical Sample Intervals (ft bgs)	Analyses							MIP Location
					VOCs	PAHs/ SVOCs	Pesticides/PCBs	TAL Metals/ Cyanide	TOC	SOD	Geotech	
SO-012	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					
		02/07/2005	1.6 - 2.6		X	X	X					
SO-013	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					MIP-005
		02/07/2005	1.4 - 1.9		X	X	X					
SO-014	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-006
		02/17/2005	1.5 - 2.0		X	X	X					
SO-015	Soil Boring	02/09/2005	0.3 - 0.8		X	X	X					
		02/09/2005	0.8 - 1.2		X	X	X					
SO-016	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-008
		02/17/2005	1.5 - 2.0		X	X	X					
SO-017	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-009
		02/17/2005	1.4 - 2.0		X	X	X					
SO-018	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-011
		02/17/2005	2.8 - 3.3		X	X	X					
SO-019	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-012
		02/17/2005	1.5 - 2.5		X	X	X					
SO-020	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					MIP-089
		02/01/2005	0.5 - 1.5		X	X	X					
SO-021	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					MIP-090
		02/01/2005	1.0 - 2.0		X	X	X					
SO-022	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					
		02/01/2005	1.0 - 2.0		X	X	X					
SO-023	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					
		02/01/2005	1.5 - 2.5		X	X	X					
SO-024	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					MIP-091
		02/01/2005	1.5 - 2.5		X	X	X					
SO-025	Soil Boring	02/02/2005	0.0 - 0.5		X	X	X					
		02/02/2005	2.2 - 2.5		X	X	X					
SO-026	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					MIP-027
		02/07/2005	1.0 - 2.0		X	X	X					
SO-027	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					
		02/01/2005	1.0 - 2.0		X	X	X					
SO-028	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					
		02/01/2005	1.5 - 2.5		X	X	X					
SO-029	Soil Boring	02/01/2005	0.0 - 0.5		X	X	X					
		02/01/2005	1.5 - 2.5		X	X	X					
SO-030	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					
		02/17/2005	2.0 - 3.0		X	X	X					
SO-031	Soil Boring	02/07/2005	0.0 - 0.5		X	X	X					MIP-036
		02/07/2005	1.5 - 2.5		X	X	X					
SO-032	Soil Boring	02/09/2005	0.0 - 0.5		X	X	X					
		02/09/2005	1.4 - 1.6		X	X	X					
SO-033	Soil Boring	02/09/2005	0.0 - 0.5		X	X	X					
		02/09/2005	2.4 - 2.6		X	X	X					
SO-034	Soil Boring	02/09/2005	0.0 - 0.5		X	X	X					
		02/09/2005	2.0 - 3.0		X	X	X					
SO-045	Soil Boring	02/02/2005	0.0 - 0.5		X	X	X					
		02/02/2005	1.5 - 2.5		X	X	X					

TABLE 3
Soil Investigation Sample Summary
OMC Plant 2

Location Identifier	Location Type	Date Logged/Sampled	Analytical Sample Intervals (ft bgs)	Geotechnical Sample Intervals (ft bgs)	Analyses: VOCs	PAHs/ SVOCs	Pesticides/PCBs	TAL Metals/ Cyanide	TOC	SOD	Geotech	MIP Location
SO-057	Soil Boring	2/23/2005	2.0 - 3.0		X							MIP-027
SO-059	Soil Boring	3/1/2005	0.0 - 1.0		X							MIP-012
SO-061	Soil Boring	03/14/2005	1.6 - 2.3	1.3 - 2.3					X		X	MIP-036
		03/14/2005	6.0 - 8.0	4.0 - 6.0					X		X	
		03/15/2005	24.0 - 24.5	24.5 - 26.5					X		X	
SO-062	Soil Boring	03/15/2005	0.8 - 2.3	NA	X	X	X		X	X		MIP-001
		03/15/2005	4.0 - 5.5	NA	X	X	X		X	X		
		03/15/2005	22.0 - 24.6	20.5 - 22.0	X	X	X		X	X	X	
SO-063	Soil Boring	03/15/2005	2.5 - 3.4	1.5 - 2.5					X		X	MIP-006
		03/15/2005	7.5 - 8.0	6.5 - 7.5					X		X	
		03/15/2005	22.0 - 22.5	20.5 - 22.0					X		X	
SO-076	Soil Boring	3/25/2005	NA									
Grassy Area on the south side of the building												
SO-050	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					
		02/17/2005	1.0 - 1.8		X	X	X					
SO-051	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-054
		02/17/2005	1.4 - 3.0		X	X	X					
SO-052	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-059
		02/17/2005	0.5 - 1.3		X	X	X					
SO-053	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					MIP-053
		02/17/2005	2.3 - 3.8		X	X	X					
SO-054	Soil Boring	02/17/2005	0.0 - 0.5		X	X	X					
		02/17/2005	0.6 - 2.7		X	X	X					
SO-055	Soil Boring	2/22/2005	4.0 - 5.0		X							MIP-053
SO-075	Soil Boring	03/24/2005	2.4 - 2.8	2.4 - 3.3					X		X	
		03/24/2005	5.4 - 5.9	5.9 - 6.9					X		X	
		03/24/2005	22.4 - 22.9	24.0 - 24.8					X		X	
SO-079	Soil Boring	03/29/2005	1.4 - 2.7	1.6 - 2.6	X	X	X		X	X	X	MIP-059
		03/29/2005	2.7 - 3.6	4.5 - 6.0	X	X	X		X	X	X	
		03/29/2005	24.0 - 24.9	20.6 - 21.6	X	X	X		X	X	X	
Beneath OMC Plant 2 building												
SO-047	Soil Boring	2/10/2005	1.0 - 2.0		X							MIP-021
SO-048	Soil Boring	2/11/2005	1.7 - 2.7		X							MIP-026
SO-049	Soil Boring	2/11/2005	1.0 - 2.4		X							MIP-015
SO-056	Soil Boring	2/22/2005	1.7 - 2.0		X							MIP-046
SO-058	Soil Boring	3/1/2005	1.1 - 1.7		X							MIP-032
SO-067	Soil Boring	03/17/2005	4.5 - 5.5	5.0 - 6.0	X	X	X		X	X	X	MIP-021
		03/17/2005	6.0 - 6.5	6.5 - 7.5	X	X	X		X	X	X	
				28.0 - 28.8							X	
SO-068	Soil Boring	03/21/2005	2.5 - 3.4	1.0 - 2.5					X		X	
		03/21/2005	5.0 - 5.5	5.5 - 6.5					X		X	
		03/21/2005	28.0 - 28.6	NA					X			
SO-069	Soil Boring	03/21/2005	0.0 - 1.7	4.0 - 5.5	X	X	X		X	X	X	MIP-043
		03/21/2005	8.0 - 10.4	5.5 - 6.5	X	X	X		X	X	X	
		03/21/2005	24.0 - 25.5	26.5 - 27.5	X	X	X		X	X	X	

TABLE 3
Soil Investigation Sample Summary
OMC Plant 2

Location Identifier	Location Type	Date Logged/Sampled	Analytical Sample Intervals (ft bgs)	Geotechnical Sample Intervals (ft bgs)	Analyses							MIP Location
					VOCs	PAHs/ SVOCs	Pesticides/PCBs	TAL Metals/ Cyanide	TOC	SOD	Geotech	
SO-070	Soil Boring	03/22/2005	3.3 - 4.5	4.5 - 5.6	X	X	X		X	X	X	
		03/22/2005	9.5 - 10.5	8.0 - 9.5	X	X	X		X	X	X	
		03/22/2005	28.0 - 28.9	28.9 - 29.9	X	X	X		X	X	X	
SO-071	Soil Boring	03/22/2005	4.0 - 5.0	2.4 - 3.4	X	X	X		X	X	X	
		03/22/2005	9.3 - 10.3	8.3 - 9.3	X	X	X		X	X	X	
		03/22/2005	25.0 - 26.1	24.0 - 25.0	X	X	X		X	X	X	
SO-080	Soil Boring	03/30/2005	2.5 - 2.9	1.0 - 2.5					X		X	
		03/30/2005	5.8 - 7.1	8.0 - 9.7					X		X	
		03/30/2005	28.0 - 29.0	29.0 - 30.4					X		X	
SO-081	Soil Boring	03/30/2005	4.0 - 4.9	0.3 - 1.4	X	X	X		X	X	X	
		03/30/2005	8.0 - 8.7	9.9 - 10.9	X	X	X		X	X	X	MIP-085
		03/31/2005	25.0 - 26.9	24.0 - 25.0	X	X	X		X	X	X	
SO-082	Soil Boring	03/30/2005	4.0 - 5.0	5.0 - 6.0	X	X	X		X	X	X	
		03/30/2005	8.0 - 8.7	8.7 - 9.7	X	X	X		X	X	X	MIP-029
		03/31/2005	17.3 - 18.7	16.0 - 17.3	X	X	X		X	X	X	
Geotechnical Properties Outside OMC Plant 2 building												
SO-061	Soil Boring	03/14/2005	1.6 - 2.3	1.3 - 2.3					X		X	
		03/14/2005	6.0 - 8.0	4.0 - 6.0					X		X	MIP-036
		03/15/2005	24.0 - 24.5	24.5 - 26.5					X		X	
SO-062	Soil Boring	03/15/2005	0.8 - 2.3	NA	X	X	X		X	X		
		03/15/2005	4.0 - 5.0	NA	X	X	X		X	X		MIP-001
		03/15/2005	22.0 - 24.6	20.5 - 22.0	X	X	X		X	X	X	
SO-063	Soil Boring	03/15/2005	2.5 - 3.4	1.5 - 2.5					X		X	
		03/15/2005	7.5 - 8.0	6.5 - 7.5					X		X	MIP-006
		03/15/2005	22.0 - 22.5	20.5 - 22.0					X		X	
SO-064	Soil Boring	03/16/2005	0.0 - 1.0		X	X	X					
		03/16/2005	4.0 - 6.6		X	X	X					MIP-041
		03/16/2005	16.0 - 17.2		X	X	X					
SO-065	Soil Boring	03/16/2005	1.9 - 2.7	0.9 - 1.9					X		X	
		03/16/2005	6.0 - 6.4	6.4 - 7.4					X		X	
		03/16/2005	19.5 - 20.0	20.0 - 21.0					X		X	
SO-066	Soil Boring	03/16/2005	0.5 - 1.0	1.0 - 2.0					X		X	
		03/16/2005	4.5 - 5.5	5.0 - 6.5					X		X	MIP-040
		03/16/2005	28.0 - 29.0	29.0 - 30.0					X		X	
SO-072	Soil Boring	03/23/2005	2.0 - 2.8	1.0 - 2.0					X		X	
		03/23/2005	4.0 - 5.0	5.0 - 6.0					X		X	
		03/23/2005	24.0 - 24.4	24.4 - 25.4					X		X	
SO-074	Soil Boring	03/24/2005	0.4 - 0.8	0.5 - 1.5	X	X	X		X		X	
		03/24/2005	2.1 - 2.4	2.5 - 3.5	X	X	X		X		X	MIP-070
		03/24/2005	22.0 - 22.9	24.1 - 25.1	X	X	X		X		X	
SO-075	Soil Boring	03/24/2005	2.4 - 2.8	2.4 - 3.3					X		X	
		03/24/2005	5.4 - 5.9	5.9 - 6.9					X		X	
		03/24/2005	22.4 - 22.9	24.0 - 24.8					X		X	
SO-077	Soil Boring	03/28/2005	2.6 - 2.8	1.6 - 2.6					X		X	
		03/28/2005	4.0 - 6.0	8.5 - 10.0					X		X	MIP-065
		03/28/2005	24.0 - 24.3	24.3 - 25.3					X		X	

TABLE 3
Soil Investigation Sample Summary
OMC Plant 2

Location Identifier	Location Type	Date Logged/Sampled	Analytical Sample Intervals (ft bgs)	Geotechnical Sample Intervals (ft bgs)	Analyses							MIP Location
					VOCs	PAHs/ SVOCs	Pesticides/PCBs	TAL Metals/ Cyanide	TOC	SOD	Geotech	
SO-078	Soil Boring	03/29/2005	0.0 - 0.6	NA					X			
		03/29/2005	2.5 - 3.1	1.5 - 2.5					X		X	
		03/29/2005	20.0 - 20.7	16.1 - 17.1					X		X	
SO-079	Soil Boring	03/29/2005	1.4 - 2.7	1.6 - 2.6	X	X	X		X	X	X	
		03/29/2005	2.7 - 3.6	4.5 - 6.0	X	X	X		X	X	X	MIP-059
		03/29/2005	24.0 - 24.9	20.6 - 21.6	X	X	X		X	X	X	
Additional Soil Sampling Locations												
SO-046	Soil Boring	2/10/2005	1.2 - 2.2		X			X				MIP-028
SO-060	Soil Boring	3/1/2005	1.5 - 2.0		X							MIP-050

Notes:
a. "bgs" represents "below ground surface".
b. "VOCs" represents "Volatile Organic Compounds".
c. "PAH" represents "Polynuclear Aromatic Hydrocarbons".
d. "SVOCs" represents "Semi-Volatile Organic Compounds".
e. "PCBs" represents "Polychlorinated Biphenyls".
f. "TOC" represents "Total Organic Carbon".
g. "SOD" represents "Soil Oxidant Demand".
h. "MIP" represents "Membrane Interface Probe".
i. "NA" represents "Not Available".
j. VOC, PAH, SVOC, Pesticide, PCB, Lead and Metals analyses completed by USEPA's Contract Laboratory Program.
k. Cyanide, TOC, SOD, and Geotechnical analyses completed by CT Laboratories of Baraboo, WI.
l. Geotechnical analyses include: Porosity, Bulk Density, Grain Size, and Moisture Content.
m. Refer to *Quality Assurance Project Plan, OMC Plant 2* (January 2005) for specific analytical test methods used.

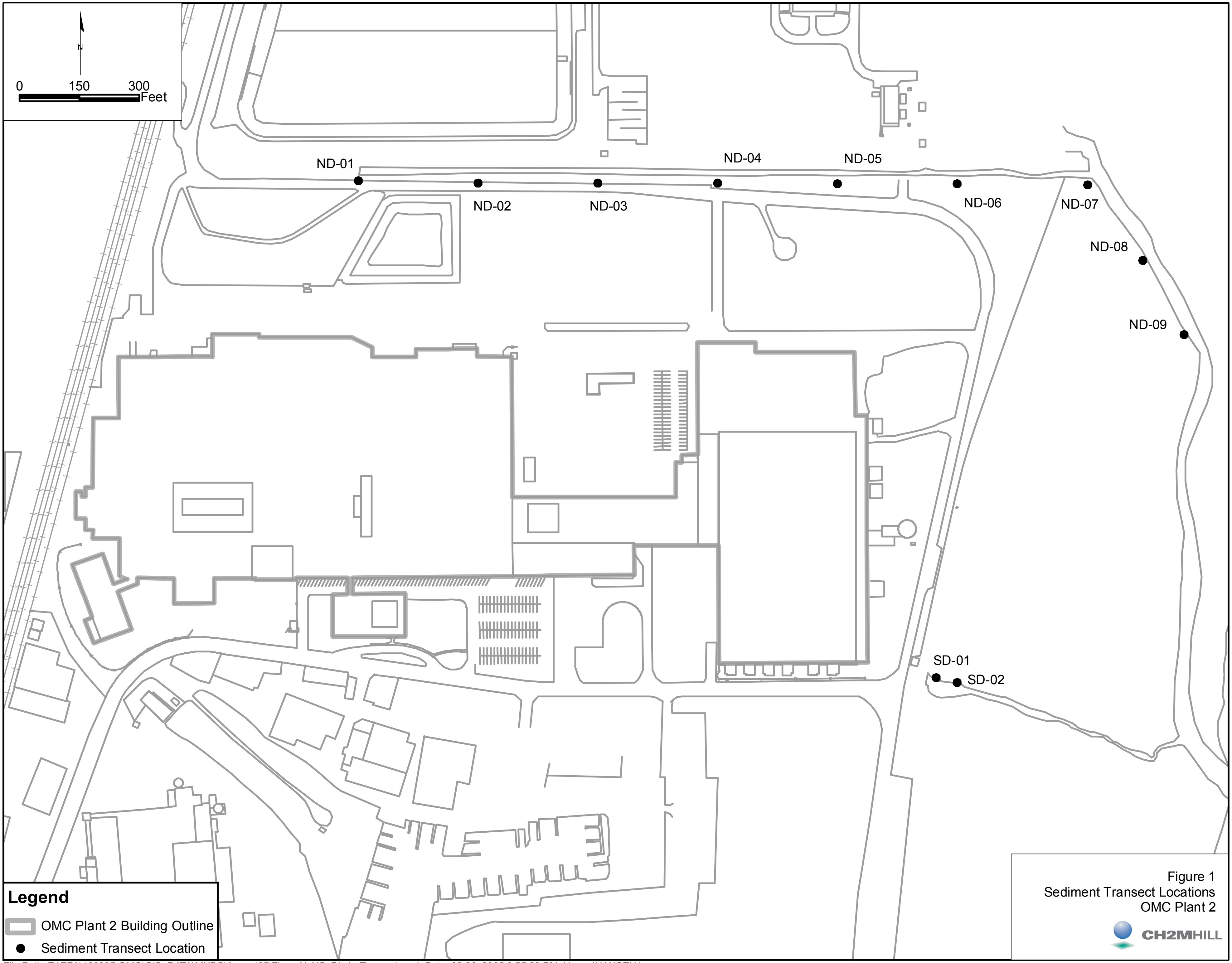


Figure 1
Sediment Transect Locations
OMC Plant 2

CH2MHILL

File Path: E:\EPA\186305-OMC\GIS_DATA\MXDS\August05\FigureX_NS_Ditch_Transect.mxd, Date: 08 26, 2005 3:55:23 PM, User: JHANSEN1

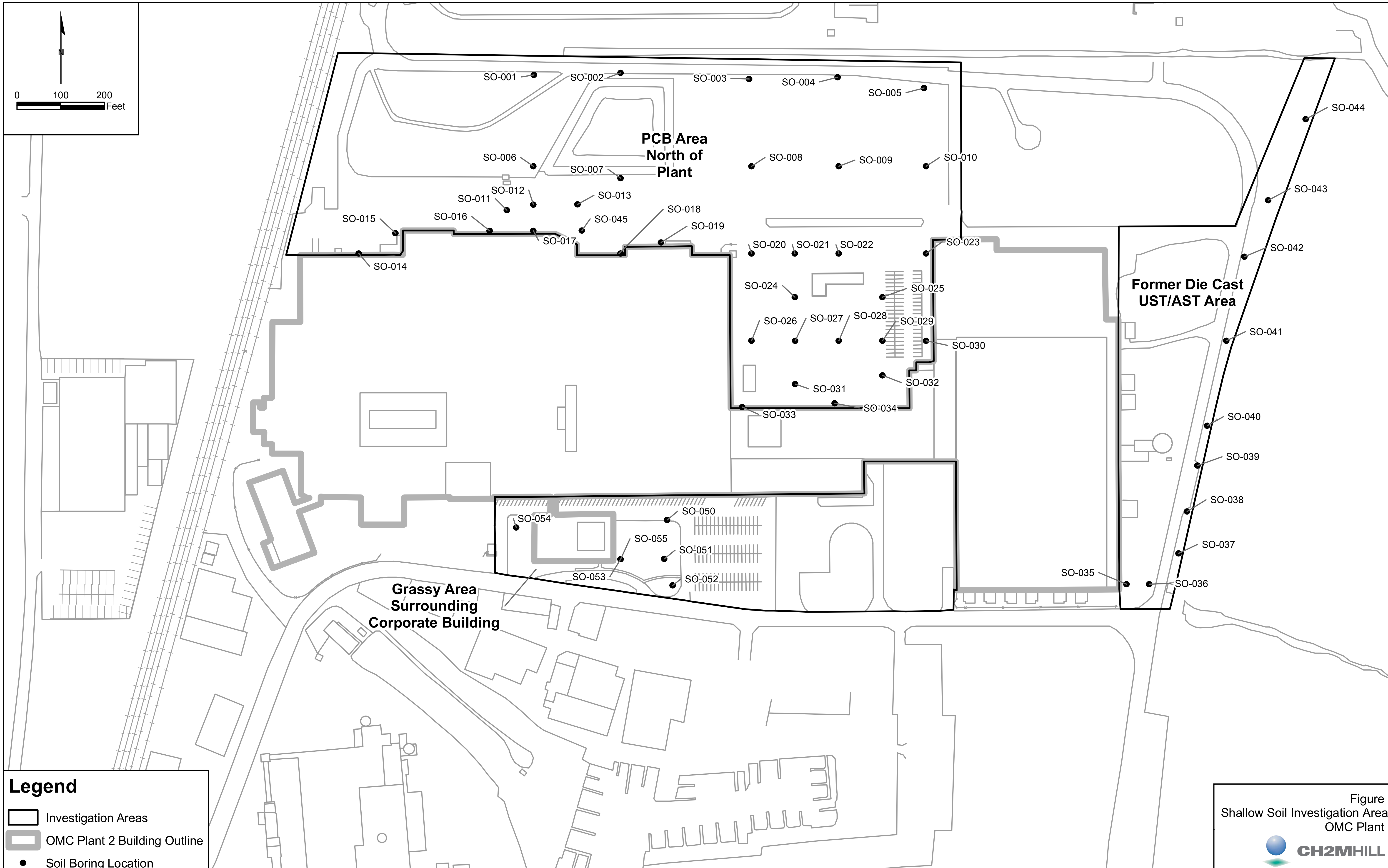


Figure 2
Shallow Soil Investigation Areas
OMC Plant 2

File Path: E:\EPA\186305-OMC\GIS_DATA\MXDS\September05\Report\Figure2_Shallow_Soil_Investigation_Area.mxd, Date: October 11, 2005 3:56:00 PM, User: JHANSEN1

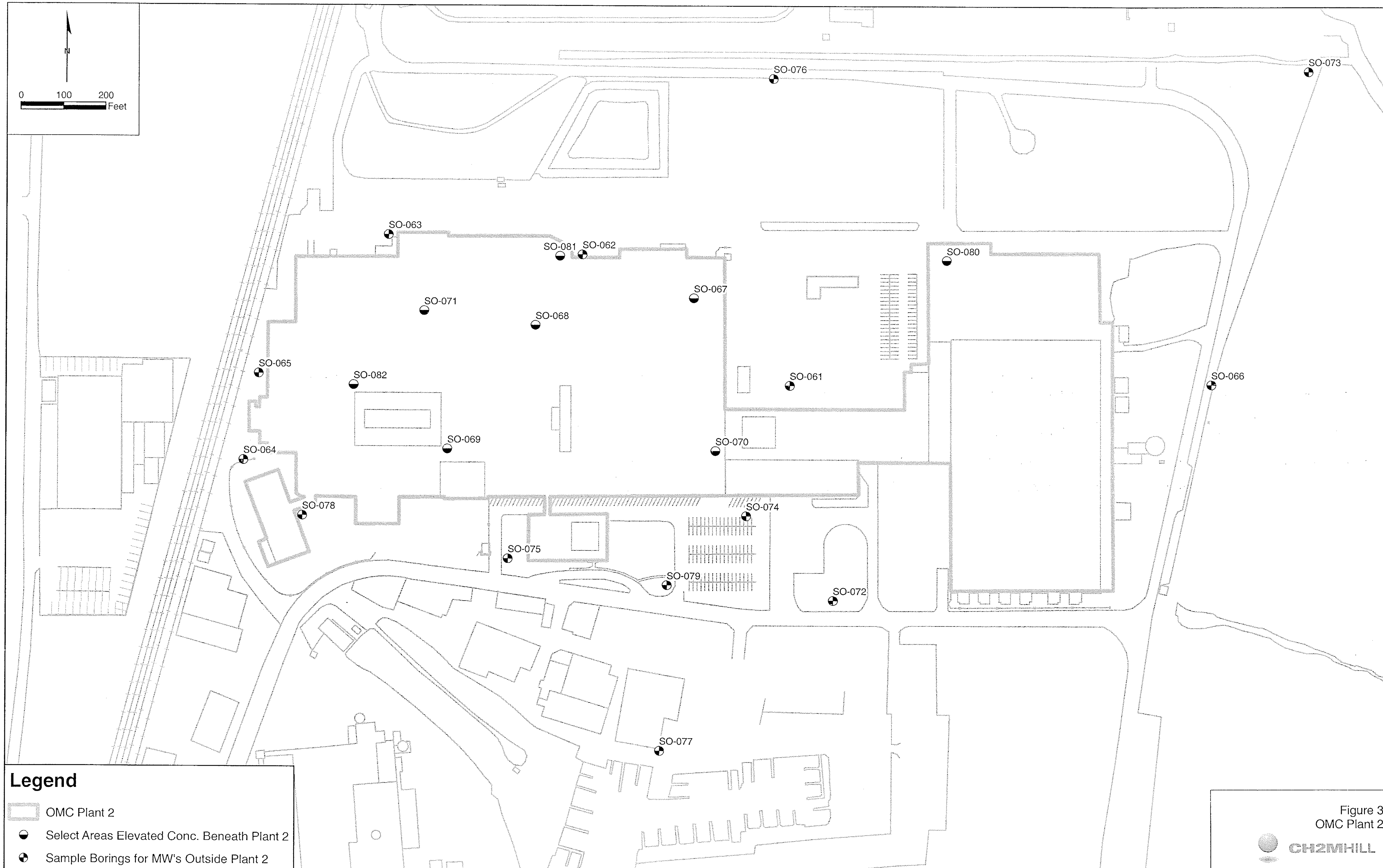


Figure 3
OMC Plant 2

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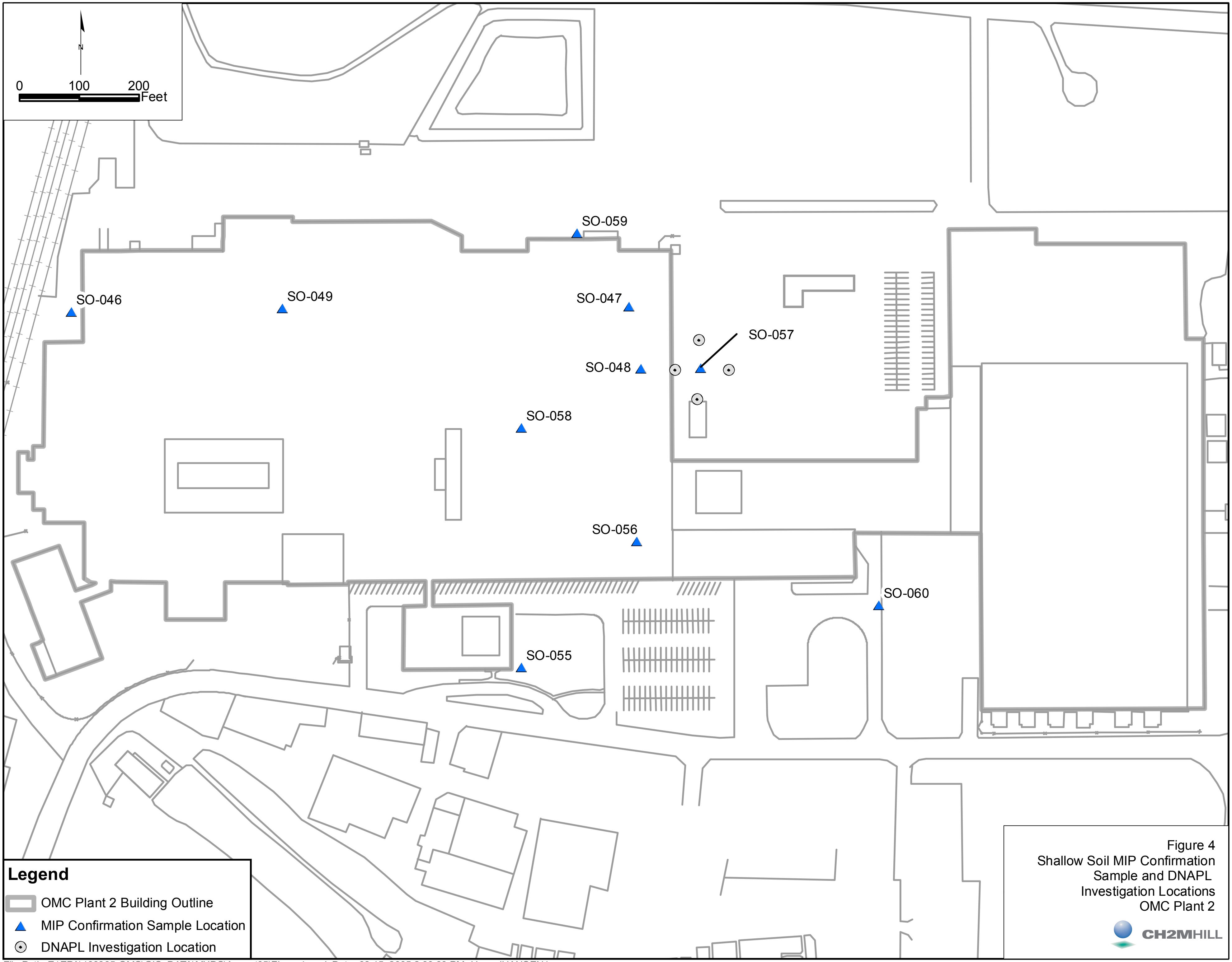

Figure 4
Shallow Soil MIP Confirmation
Sample and DNAPL
Investigation Locations
OMC Plant 2

CH2MHILL

File Path: E:\EPA\186305-OMC\GIS_DATA\MXDS\August05\Figure4.mxd, Date: 08 15, 2005 2:30:39 PM, User: JHANSEN1

Attachment 1

Soil Boring Logs
OMC Plant 2—Geological Investigations

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-001	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 2/2/05 FINISH: 2/2/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4		3.4/4		Silty clay, CL, dark brown, damp, stiff, (fill)	PID = 0.0 ppm Collect soil sample from 0-0.5' bgs
1	0.4-0.7				Sand, fine-grained, SP, damp, light brown	PID = 0.1 ppm
	0.7-1.6				Silty, sandy, clay, CL, dark brown to brown, damp to moist, stiff; some gravels, "glassy" surfaces, possibly coal	PID = 8.6 ppm Collect soil sample from 0.7-1.6' bgs
2	1.6-4				Sand, medium to coarse-grained, SP, light brown, moist to wet at 2.7' bgs	PID = 0.0 ppm ∇ water table @ 2.7' bgs
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-002	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.1' bgs START: 2/2/05 FINISH: 2/2/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1		3.6/4		Asphalt, silty sandy clay and gravel fill, HF, dark brown, damp, possible slag, loose	Collect soil sample from 0-0.5' bgs PID = 3.1 Collect soil sample from 0.5-1.3' bgs
1	1-1.3				Sandy clay, CL, orange-brown, moist, loose (fill)	PID = 0.0
	1.3-1.7				Silty clay, CL, light tan, dry stiff, occasional gravel (possible fill)	PID = 0.0
2	1.7-3.3				Sand, fine to medium, SP, light brown, moist to wet at 3.1' bgs	
3						PID = 0.0 ∇ water table @ 3.1' bgs
	3.3-4				Sand and gravel, SP, grey/brown, wet	
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-003	SHEET 1 OF 1

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' START: 1/31/05 FINISH: 1/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4	1	3.6/4		Asphalt and gravel fill, HF, dark brown, damp	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	0.4-1				Silty clay and gravel fill, HP, light brown, dry	
	1-6.4				Sand, medium to fine, SP, light brown with black bedding, moist to wet at ~ 2.5' bgs	Collect soil sample from 1.5-2' bgs
2						
3						∇ ~ 2.5' bgs
4						
5		2	3.3/4			
6						
7	6.4-7				Sand and gravel, SP/GP, brown to light brown, wet	
	7-8				Sand, fine-grained, SP, light brown to tan, wet	
8					EOB @ 8' bgs	
10						
15						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-004	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Access Road Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.9' bgs START: 2/2/05 FINISH: 2/2/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6				Silty sand and gravel fill, HF, dark brown, damp, loose	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
	0.6-1.4				Silty sandy clay, CL, dark brown, damp, stiff (fill)	Collect soil sample from 0.6-1.4' bgs
1						
	1.4-4				Sand and gravel, SP, light brown, damp to wet; mostly medium-grained sand; wet at 2.9' bgs	
2						
3						∇ water table @ 2.9' bgs
4					EOB @ ~ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-005	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Access Road Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 2/2/05 FINISH: 2/2/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.8/4		Asphalt, silty sand and gravel fill, HF, dark brown, damp	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	0.6-1.4				Silty clay, CL, orange-brown, dry, stuff (fill)	
	1.4-2				Silty, sandy clay, CL, orange-brown, soft, moist (fill?)	
2	2-4				Sand and gravel, SP, light tan to brown, moist to wet at 2.8' bgs	Collect soil sample from 2-2.5' bgs
3						∇ water table @ 2.8' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-006	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: East of West Containment Cell
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.3/4		Silty clay fill, HF, dark brown, moist, stiff	collect soil sample from 0-0.5' bgs PID not working
1	0.7-1.9				Sand, SP, light brown to brown, damp, loose	Possible liner encountered for containment cell Collect soil sample from 0.7-1.9' bgs
2	1.9-4				Sand and gravel, SP, brown, moist to wet at 2.5' bgs	∇ water table @ 2.5' bgs
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-007	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: East of Retention Pond
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.9' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.8/4		Asphalt, silty sand and gravel, HF, dark brown to black, moist	Collect soil sample from 0-0.5' bgs PID = 0.0
1	0.7-1.4				Silty, sandy clay and gravel, till, HF, brown, moist, loose, fill	Collect soil sample from 0.7-1.4' bgs
2	1.4-4				Sand, SP, light brown to tan, moist to wet at 2.9' bgs; some black laminations from 2.6' to ~3' bgs	
3						∇ water table @ 2.9' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-008	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 1/31/05 FINISH: 1/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1		3.5/4		Sand and gravel fill, HF, dark brown, damp	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
	1-1.5				Silty clay and gravel fill, HF, light brown, dry, stiff	
	1.5-2.5				Sand, medium to fine-grained SP, light brown, damp	Collect soil sample from 1.5-2.5' bgs
	2.5-4				Sand and gravel, SP, brown, damp to wet at 3' bgs	∇ ~ 3' bgs
					EOB @ 4' bgs	
5						
15						
20						
25						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-009	SHEET 1 OF 1

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' START: 1/31/05 FINISH: 1/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5				Sand and gravel fill, HF, dark brown, moist to damp	Collect soil sample from 0-0.5' PID = 0.0 ppm
1	0.5-1.5		3.7/4		Silty, sandy clay and gravel fill, HF, light brown, dry	
2	1.5-3.4				Sand, coarse to medium, SP, light brown, damp to moist	Collect soil sample from 1.5-2.5'
3						∇ water table @ 3.4' bgs
4	3.4-4				Sand, medium to fine, SP, light brown, wet EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-010	SHEET 1 OF 1

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.9' START: 1/31/05 FINISH: 1/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.6/4		Sand and gravel fill, HF, dark brown, moist to damp	Collect soil sample from 0-0.5' PID = 0.0 ppm
1	0.5-1.5				Silty clay with sand and gravel fill, HF, brown to tan, dry, stiff	
2	1.5-2.5				Sand, medium to fine, SP, dark brown to brown, damp	Collect soil sample from 1.5-2.5'
3	2.5-4				Sand, medium, SP, light brown, moist to wet at 2.9' bgs	∇ ~ 2.9' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-011	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: South of West Containment Cell

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~2.7' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.2		3.7/4		Asphalt, silt, sand and gravel fill, dark brown/black/dry, loose	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	1.2-1.9				Silty clay and gravel fill, light grey/pink, damp, loose	Collect soil sample from 1.2-1.9' bgs
2	1.9-4				Sand and gravel, SP, brown to tan, moist to wet at 2.7' bgs	
3						*Engineered fill encountered in offset boring at ~ 3-4' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-012	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Former TCE Tank Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.8/4		Silty sand and gravel fill, asphalt, dark brown to black, damp	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	0.6-1.6				Silty sandy clay and gravel fill, HF, light brown, damp, stiff	Collect soil sample from 1.6-2.6' bgs
2	1.6-4				Sand, medium-grained, SP, some random gravel, brown to tan, moist to wet ~ 3' bgs	
3						∇ water table @ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-013	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: South of Retention Pond
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~3' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.3/4		Asphalt, sand and gravel fill, HF, light brown to black, damp, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.5-1.2				Silty clay and gravel fill, HF, tan to orange-brown, damp, stiff	
	1.2-1.4				Sand, SP, light brown, damp	
	1.4-1.9				Sandy clay, CL, black mottling, damp	Collect soil sample from 1.4-1.9' bgs
2	1.9-4				Sand, SP, medium-grained, light brown, some iron mottling, moist to wet at 3' bgs	
3						∇ water table @ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-014	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: ~ 100' East of North Loading Dock

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: No water table encountered START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		2.9/4		Silty sandy clay and gravel fill, HF, light grey to brown, damp, stiff	Concrete 0-3" had staining Collect soil sample from 0-0.5' bgs
	0.7-0.9				Wood	PID = 0.0 ppm
1	0.9-4				Silty sandy clay and gravel fill, HF, brown to black (possible staining), some glass, damp, medium to soft	PID = 2.8 ppm Staining at ~ 1.5 to 2.9' bgs, petroleum odor Collect soil sample from 1.5-2' bgs
2						
3						
4					EOB @ 4' bgs	
5						
10						
15						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-015	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: On Concrete Slab near North Loading Dock
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' bgs START: 2/9/05 FINISH: 2/9/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3				Concrete pad	Collect soil sample from 0.3-0.8' bgs
	0.3-1.2		3.8/4		Silty sandy clay and gravel fill, HF, orange-brown, some red streaks (clay bricks), damp, stiff and loose	Collect soil sample from 0.8-1.2' bgs Red streaks at 0.9' bgs
1	1.2-2.1				Sand and gravel fill, HF, fine to coarse-grained, brown, moist	
2	2.1-2.3				Sand, coarse, SP, brown with some black sand grains, moist	∇ water table @ ~ 2.5' bgs
	2.3-4				Sand, fine to medium, SP, trace coal, brown/grey to grey, moist to wet at ~ 2.5' bgs	
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-016	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near North locker Room Outside
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1		2.8/4		Silty sandy clay and gravel fill, HF, light brown, frozen	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	1-4				Silty sand and gravel fill, HF, brown to black (~ 1.5' bgs), damp to wet ~ 2.7' bgs	
2						Collect soil sample from 1.5-2' bgs Possible staining "black" at ~ 1.5' bgs
3						∇ water table @ ~ 2.7' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-017	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Outside Near Former Vapor Degreaser
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.4/4		Silty sandy clay and gravel, HF, dark brown, dry, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.5-1.4				Clayey sand and gravel, HF, orange-brown, damp to moist at ~ 1.2' bgs	
	1.4-4				Sand fill, HF, brown to tan-brown, moist to wet at ~ 3' bgs, loose (random slag)	Possible black staining at 1.4-2' bgs Collect soil sample from 1.4-2' bgs
2						
3						∇ water table @ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-018	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Former Union Trailer
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: No water table encountered START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.3/4		Asphalt, silty clay and gravel fill, HF, dark brown/black to light grey, dry, frozen	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.6-1.8				Silty clay and gravel fill, HF, brown, damp, stiff	
2	1.8-2.8				Sand, SP, light brown, damp to moist, orange mottling at ~ 1.8' bgs	
3	2.8-4				Sand, SP, dark grey/black, moist	PID = 12.7 ppm Odor: "diesel fuel" "Stained" black Collect soil sample from 2.8-3.3' bgs
4					EOB @ 4' bgs	
5						
10						
15						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-019	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Former Guard Shack
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4		3.3/4		Asphalt, silty sandy clay and gravel, HF, dark brown, frozen, dry	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.4-0.7				Silty sandy clay and gravel, HF, orange-brown, damp, loose	
2	0.7-4				Sand, SP, brown to orange-brown, moist to wet at ~ 2.8' bgs, some iron stains from 1.5-2.5' bgs	Collect soil sample from 1.5-2.5' bgs
3						∇ water table @ 2.8' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-020	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.4/4		Asphalt, sand and gravel fill, HF, dark brown to black, dry	Collect soil sample from 0.0-0.5' bgs PID = 4.0 ppm
1	0.5-2				Silty clay fill, HF, light brown, damp, slight odor	Collect soil sample from 0.5-1.5' bgs PID = 12.2 ppm @ ~ 0.9' bgs
2	2-2.9				Sand, coarse to medium, SP, light brown, moist	PID = 3.7 ppm
3	2.9-4				Sand and gravel, SP, light brown, moist to wet at 3.1' bgs	∇ water table @ 3.1' bgs PID = 5.1 ppm
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-021	SHEET 1 OF 1

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.4/4		Silt and gravel fill, HF, light tan, damp, loose	PID = 0.3 ppm Collect soil sample from 0-0.5' bgs
1	0.5-1.5				Silty clay and gravel fill, HF, brown to light tan, damp, stiff	PID = 0.8 ppm Collect soil sample from 1-2' bgs
2	1.5-3				Sand, medium to fine, SP, light brown, damp to moist	PID = 0.7 ppm
3	3-4				Sand, coarse to medium, SP, light brown, wet	∇ water table @ 3' bgs PID = 0.8 ppm
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-022	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.2		3.8/4		Silty clay and gravel fill, HF, light grey to light brown, damp, stiff	Collect soil sample from 0.0-0.5' bgs PID = 0.3 ppm
1	1.2-4				Sand, fine to coarse, SP, light brown to dark brown, damp to wet at ~ 3' bgs	Collect soil sample from 1-3' bgs PID = 0.8 ppm
2						
3						∇ ~ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-023	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.2' START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.5/4		Asphalt, sand and gravel fill, HF, dark brown to black, dry	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	0.6-0.9				Silty clay and gavel fill, HF, grey to light brown, damp, stiff	
	0.9-2				Silty clay with sand fill, HF, brown, damp, stiff	
2	2-2.5				Sand, coarse to fine, SP, light brown, damp	Collect soil sample from 2-3' bgs
	2.5-3				Clayey sand, SP, dark brown to black, moist, organics	
3	3-4				Sand, medium to fine, SP, light brown to tan, moist to wet at 3.2' bgs	∇ water table @ 3.2' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-024	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4				Silt and gravel fill, HF, light grey, moist	Collect soil sample from 0.0-0.5' bgs
	0.4-1		3.3/4		Silty clayey sand with gravel, fine to medium, SC/GC, dark brown to very dark brown, damp (fill)	PID = 0.0
1	1-4				Sand, medium- to coarse-grained, brown to light brown; wet at 2.8' bgs	Collect soil sample from 1.5-2.5' bgs PID = 0.2
2						
3						∇ @ 2.8' bgs
4					EOB @ 4.0' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-025	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.5' bgs START: 2/2/05 FINISH: 2/2/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3.8/4		Asphalt, sand and gravel fill, HF, dark brown, dry	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.8-2.2				Silty clay and gravel fill, HF, light grey to tan, moist	
2	2.2-4				Sand, fine to medium-grained, SP, brown to light brown, moist to wet at 3.5' bgs	Collect soil sample from 2-2.5' bgs
3						∇ water table @ 3.5' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-026	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		2.8/4		Asphalt, silty, sandy, clay and gravel fill, HF, black to orange-brown, moist to damp, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.7-1				Clayey sand, SC, dark brown, damp, fill	Collect soil sample from 1-2' bgs
	1-4				Sand, medium-grained, SP, light brown, trace gravel, moist to wet ~ 2.5' bgs	∇ water table @ 2.5' bgs
2						
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-027	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3.3/4		Silt and gravel fill, light tan, damp	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
	0.8-1				Silty clayey sand, SP, dark brown to black, moist	
1	1-4				Sand, fine- to coarse-grained, SP, brown to light grown, moist to wet at 2.7' bgs	Collect soil sample from 1-2' bgs
2						
3						∇ water table @ 2.7' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-028	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.9' bgs START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.2		3.4/4		Silty clay and gravel fill, HF, brown to light grey, damp, stiff	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	1.2-2.4				Silty, clayey sand, SM/SC, brown to dark brown/black, organic odor, moist, clay lenses are stiff (dark brown)	Collect soil sample from 1.5-2.5' bgs
2						
	2-4-4				Medium to coarse sand with occasional gravel, SP, grey/brown, moist to wet at 2.9' bgs	
3						∇ @ 2.9' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-029	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: 3.2' bgs START: 2/1/05 FINISH: 2/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4		3.5/4		Asphalt, silt and gravel fill, HF, dark brown, damp, loose	Collect soil sample from 0.0-0.5' bgs
1	0.4-1.5				Silty clay and gravel fill, HF, light grey to light tan, damp, stiff	
						Some purple straining @ 1.5' bgs
2	1.5-1.9				Silty sand, SM, dark brown to black, moist.	
	1.9-4				Sand, fine to medium, SP, brown, moist to wet at 3.2' bgs	
3						∇ @ 3.2' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-030	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West of New Die Cast Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.2' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.4/4		Asphalt, sandy, silty clay and gravel fill, HF, dark brown to almost white, dry, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.7-4				Sand and gravel fill, HF, some brick pieces, light brown to grey, moist to wet at ~ 3.2' bgs	
2						Collect soil sample from 2-3' bgs
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-031	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: South of Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' bgs START: 2/7/05 FINISH: 2/7/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3/4		Silty clay and gravel fill, HF, light tan to to white, moist, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.8-1.2				Silty sandy clay fill, HF, dark brown, loose, damp	
	1.2-2.5				Clayey sand and gravel fill, HF, light browr to dark brown, moist, loose	Collect soil sample from 1.5-2.5' bgs
2						
						∇ water table @ 2.5' bgs
3	2.5-4				Sand and gravel, SP, dark grey, wet; sand is medium-grained	
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-032	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: South of Former PCB AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.9' bgs START: 2/9/05 FINISH: 2/9/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3				Clay and topsoil fill, HF, dark brown to black, damp, loose; some roots	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
	0.3-0.8				Silty clay and gravel with sand fill, HF, grey to tan, damp to moist	
1	0.8-1.2				Sand, fine to medium, SP, brown to dark brown, moist	
	1.2-1.4				"Pea gravel" and sand, GP, brown, damp	
	1.4-1.6				Clayey sand, SC, black, damp, "sticky"	Collect soil sample from 1.4-1.6' bgs
2	1.6-4				Sand, fine to medium, SP, trace gravel, grey to light tan, damp to wet at ~ 2.9' bgs	
3						
4					EOB @ 4' bgs	
5						
6						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-033	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: South of Former PCB/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.1' bgs START: 2/9/05 FINISH: 2/9/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0.0-2		3.6/4		Silty clay fill with gravel, HF, brown, damp, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.2-2.4				Sand, fine to medium, SP, some coal flakes in sand, light brown to brown, damp (fill)	
2						
	2.4-2.6				Coarse sand and gravel (possibly foundry sand), black to dark brown, damp (fill)	Collect soil sample from 2.4-2.6' bgs
3	2.6-4				Sand and gravel, SP, brown to light brown, moist to wet at 3.1' bgs	∇ water table @ 3.1' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-034	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: South of Former PCB/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~3.4' bgs START: 2/9/05 FINISH: 2/9/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.8/4		Silty, sandy, clay and gravel fill, HF, brown with occasional black coal pieces, damp, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.6-1.6				Silty clay and gravel fill, HF, light grey to white, damp	
2	1.6-4				Sand, fine to coarse, SP, brown, damp to moist at 2.3' bgs and wet at 3.4' bgs	Collect soil sample from 2.3' bgs
3						∇ water table @ 3.4' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-035	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 2/8/05 FINISH: 2/8/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3.4/4		Asphalt, slag and gravel fill, HF, black, dry, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.8-1				Silty gravelly fill, HF, light grey, damp, loose	Collect soil sample from 1-2' bgs
	1-4				Sand, medium- to fine-grained, SP, brown to tan, damp to wet at ~3' bgs; trace gravel	
2						
3						∇ water table @ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-037	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.9' bgs START: 2/9/05 FINISH: 2/9/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0.0.4		3.3/4		Clayey sand fill, brown to dark brown, damp, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.4-2.7				Sand, fine to medium, SP, light brown, damp to moist at 2.2' bgs	Collect soil sample from 1-2' bgs
2						
3	2.7-4				Sand, fine to medium, SP, grey, moist to wet at 2.9' bgs	∇ water table @ 2.9' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-038	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' bgs START: 2/8/05 FINISH: 2/8/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1		2.3/4		Silt, sand and gravel fill, HF, light brown to black, dry, loose	Collect soil sample from 0.0-0.5' bgs r
1	1-4				Sand, medium to fine, SP, light brown, damp to wet at ~ 2.5' bgs?	Collect soil sample from 1-2' bgs
2						∇ water table @ 2.5' bgs
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-039	SHEET 1 OF 1

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 2/8/05 FINISH: 2/8/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.3/4		Asphalt, slag, sand, silt and gravel fill; dark brown to black, dry, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.6-1.3				Silty clay and gravel fill, light brown, damp, loose	Collect soil sample from 0.6-1.3' bgs
2	1.3-4				Sand, medium to fine, SP, trace gravel; brown, damp to wet at 3' bgs	
3						∇ water table @ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-040	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS   LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: NA   START: 2/8/05   FINISH: 2/8/05   LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-4		2.2/4		Sand, medium to fine, SP, damp, light brown to brown, trace clay near surface; possible fill	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1						
2						Collect soil sample from 1.5-2' bgs No water table to 2.2' bgs
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-041	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.5' bgs START: 2/8/05 FINISH: 2/8/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3		2.9/4		Silty clay topsoil fill, HF, brown, moist, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.3-4				Sandy, medium to fine, SP, brown to light brown, damp to wet at 2.5' bgs; possible fill	
2						Some dark staining at 1.4-2.5' bgs Collect soil sample from 1.4-2.4' bgs
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-042	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Former Die Cast UST/AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 2/8/05 FINISH: 2/8/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.2				Topsoil fill, HF, black, frozen	Collect soil sample from 0.0-0.5' bgs
	0.2-0.5		3.4/4		Silty sand with clay fill, HF, brown, damp, loose	PID = 0.0 ppm
1	0.5-4				Sand, medium to fine, SP, light brown to brown, damp to wet at 3' bgs	Some black staining? throughout interval
						Collect soil sample from 1.5-2.5' bgs
2						
3						∇ water table @ 3' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-043	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: Along Eastern Access Road near W-5
ELEVATION: — DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.2' bgs — START: 2/9/05 — FINISH: 2/9/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3				Topsoil fill, HF, dark brown, damp, medium, soft	Collect soil sample from 0.0-0.5' bgs
	0.3-0.6		3.5/4		Clayey sand, SC, brown with black-orange mottling, damp, possible fill	PID = 0.0 ppm
1	0.6-2.8				Sand, fine to medium, SP, brown to light tan, damp	
2						
	2.8-3				Sand with clay and silt, SC/SM, dark grey to black, organic odor, moist, sticky	Collect soil sample from 2.8-3' bgs
3						∇ water table @ 3.2' bgs
	3-4				Sand, fine to medium, SP, grey, some black fines, moist to wet at ~3.2' bgs	
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-044	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Northeast Corner of Property
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: NA START: 2/9/05 FINISH: 2/9/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3.8/4			
1					Engineered fill to 4' bgs. **Not** on East Containment Cell cap. Did not sample; abandoned location.	
2						
3						
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-045	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Former TCE Tanks
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.5' bgs START: 2/2/05 FINISH: 2/2/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		3.7/4		Silty clay and gravel fill, HF, light pink to light grey, damp, loose	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	0.9-2.8				Silty sandy clay and gravel fill, HF, light brown to brown, damp, stiff	Collect soil sample from 1.5-2.5' bgs
2						
3	2.8-4				Sand, medium-grained, SP, tan/brown, moist to wet at ~ 3.5' bgs; wood in tip of shoe; some mica flakes	∇ water table @ ~ 3.5' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-046/MIP-028 SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 2/10/05 FINISH: 2/10/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.2		3.4/4		Sandy, silt and gravel fill, HF, brown to light grey to light orange-brown, dry to damp at 0.7' bgs	PID = 0.0 ppm
1	1.2-4				Sand, fine to coarse, SP, light brown (grey black from 1.6-1.9' bgs), moist to wet at 2.8' bgs	Collect soil sample from 1.2-2.2' bgs
2						
3						∇ water table @ 2.8' bgs
4					EOB @ 4' bgs	Collect groundwater grab sample from 3-7' bgs
5						
10						Collect groundwater grab sample from 10-14' bgs
15						Collect groundwater grab sample from 16-20' bgs
20						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-047/MIP-021 SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: In Building, North Portion of Former Metal Working Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 8.5' below floor START: 2/10/05 FINISH: 2/10/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-2.7		3.7/4		Silty sandy clay and gravel fill, HF, light brown to dark brown, dry, loose	PID = 14.7 ppm at 1.4'
1						Collect soil sample from 1-2' bgs
2						
	2.7-4				Sand and gravel fill, SP, light brown to dark brown, dry, loose	PID = 5.3 ppm
3						
						No water table encountered to 8'
4						
						Water table ~ 8.5' from GW grab sample
						Collect GW grab sample from 8-12' bgs
10						
15						
						Collect GW grab sample from 18-22' bgs
20						
25						
						Collect GW grab sample from 26-30' bgs
30						
35						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-048/MIP-026	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS
LOCATION: In Building, North Portion of Former Metal Working Area
ELEVATION:
DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: NA
START: 2/11/05
FINISH: 2/11/05
LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1	Concrete floor	2.8/4		Silty, sandy, clay and gravel fill, HF, orange-brown to brown, damp, loose	PID = 11.4 ppm
1	1-1.7				Sand, fine, with occasional clay intervals, fill, HF, light brown to brown, damp	PID = 13.2 ppm
2	1.7-4				Sand, coarse predominantly to fine, light brown, dry (crunchy dry); possible fill	PID = 15 ppm at ~ 2' bgs. Collect soil sample from 1.7-2.7' bgs
						No water table encountered to ~4' bgs
3						
4					EOB @ 4' bgs	
5						
						Collect groundwater grab sample from 7.5-11.5' bgs
10						
						Collect groundwater grab sample from 13-17' bgs
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-049/MIP-15	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: In Building, Near Old Die Cast Area (just East)
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: NA START: 2/11/05 FINISH: 2/11/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		2.4/4		Silty sandy clay and gravel fill, HF, brown, dry to damp, loose	PID = 0.3 ppm
	0.6-4				Sand, medium to fine, SP, tan to brown, dry, loose; possible fill	PID = 0.3 ppm
1						Collect soil sample from 1-2.4' bgs
						No water table encountered
2						
3						
4					EOB @ 4' bgs	
5						
						Collect groundwater grab sample from 6-10' bgs
10						
						Collect groundwater grab sample from 14-18' bgs
15						
20						Collect groundwater grab sample from 25-29' bgs

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-050	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: Near Corporate Building
ELEVATION: — DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.1' bgs — START: 2/17/05 — FINISH: 2/17/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1		3.3/4		Topsoil fill, HF, dark brown/black, damp, soft	Collect soil sample from 0.0-0.5' bgs PID = 0.0 ppm
1	1-1.8				Silty clay fill, HF, light brown, damp, stiff	Collect soil sample from 1-1.8' bgs
2	1.8-4				Sand, SP, light brown/tan with dark brown/black laminations, damp to wet at ~ 3.1' bgs; random coal	
3						∇ water table @ 3.1' bgs
4					EOB @ 4' bgs	
5						
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-051	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.2' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.5/4		Topsoil, HF, dark brown/black, moist, soft	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	0.7-1.4				Silty clay fill, HF/CL, brown, damp, stiff	PID = 0.1 ppm
2	1.4-3				Sand, SP, brown, damp	PID = 0.4 ppm at top of sand Collect soil sample from 1.4-3' bgs
3	3-3.5				Sand and gravel, SP, moist to wet at 3.2' bgs	∇ water table @ 3.2' bgs
4					EOB @ ~ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-052	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: 2.8' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4				Topsoil, HF, dark brown/black, moist	Collect soil sample from 0-0.5' bgs
	0.4-1.3		2.7/4		Silty clay fill, HF, brown, damp, stiff to medium stiffness	PID = 0.0 ppm
1						Collect soil sample from 0.5-1.3' bgs
	1.3-4				Sand, SP, light brown to brown, damp to wet @ 2.8' bgs	
2						
3						
4					EOB @ ~ 4' bgs	
5						
10						
15						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-053	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: No water table encountered START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6				Topsoil, HF, dark brown to black, moist	Collect soil sample from 0-0.5' bgs
			3.8/4		Silty clay fill, HF, brown to light brown, damp, stiff	PID = 0.0 ppm
	0.6-2.3					
1						
2						
	2.3-4				Sand, SP, brown with dark brown silty seams, damp	Collect soil sample from 2.3-3.8' bgs
3						
4					EOB @ ~ 4' bgs	
5						
10						
15						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-054	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.7' bgs START: 2/17/05 FINISH: 2/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		4/4		Topsoil fill, HF, dark brown/black, damp, medium/soft stiffness	Collect soil sample from 0-0.5' bgs PID = 0.0 ppm
1	0.6-2.7				Silty clay with sand, fill, HF, brown to orange-brown, damp, stiff	Collect soil sample from 0.6-2.7' bgs
2						
3	2.7-3.3				Silty, sandy clay and gravel fill, HF, brown, damp	
4	3.3-4				Sand, SP, grey-brown to brown, damp to wet at ~ 3.7' bgs EOB @ ~ 4' bgs	
5						
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-055	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Corporate Building/MIP-53
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.2' bgs START: 2/22/05 FINISH: 2/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.4/4		Topsoil fill, HF, dark brown, damp	PID not working Refer to SO-053 log
1	0.6-2.3				Silty clay with sand fill, HF, orange-brown, damp, stiff	
2						
3	2.3-6				Sand, SP, with gravel (random) and minor clay (2.5-2.8' bgs) (4.4-4.8' bgs) light brown to dark brown, damp to wet at ~ 5.2' bgs	
4						Collect soil sample from 4-5' bgs
5						∇ water table @ ~ 5.2' bgs
6						Collect GW grab sample from 6-10' bgs Collect GW grab sample from 19-23' bgs Collect GW grab sample from 27-31' bgs; slight "sulfur" odor
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-056	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: In Building, Just West of Triax/MIP-046
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: NA START: 2/22/05 FINISH: 2/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3		2.3/4		Silty sandy gravel fill, HF, brown, dry, loose	PID = 0.2 PPM
	0.3-0.7				Clayey, silty, sand, HF, brown, damp	PID = 2.9 ppm
1	0.7-4				Sandy fill with some clay, HF, light brown to dark brown, dry, loose; clay ~1.7-2' bgs	PID = 2.5 ppm Dark brown 1.7-2' bgs could be staining. PID = 5.9 ppm. Collect soil sample from 1.7-2' bgs. PID = 1.7 ppm
2						
3						
4						
5						Collect GW grab sample from 6-10' bgs Collect GW grab sample from 16-20' bgs Collect GW grab sample from 25-29' bgs
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-057	SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Former PCB Tanks/MIP-027
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.1' bgs START: 2/23/05 FINISH: 2/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3.3/4		Asphalt, silty sandy clay fill, HF, dark brown to orange-brown, damp, medium slag at ~ 0.1' at bottom of interval	PID = 0.0 ppm
1	0.8-1.4				Silty sand and gravel fill, HF, orange-brown, damp, loose	
	1.4-1.6				Clayey sand, SP, dark brown, damp	
2	1.6-4				Sand, SP, with random gravel, light brown/tan, damp to wet at ~ 3.1' bgs	
3						
4						
5						Collect GW grab sample from 5-9' bgs
						Collect GW grab sample from 17-21' bgs
						Collect GW grab sample from 26.5-30.5' bgs. Product "DNAPL" encountered.
10						
15						
20						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-058/MIP-032 SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Inside Building, Metal Working
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: START: 3/1/05 FINISH: 3/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		2.2/4		Silty sandy clay and gravel fill, HF, brown, damp	PID = 0.5 ppm
1	0.7-1.1				Sand, SP, light brown to brown, dry, possible fill	PID = 0.7 ppm
	1.1-1.7				Clayey sand, dark brown, dry, loose, some random large sand-sized coal fragments	Possible staining PID = 0.8 ppm Collect soil sample from 1.1-1.7' bgs
2	1.7-4				Sand, SP, dark brown, dry	PID = 0.5 ppm
3						
4						
5						Collect GW grab sample from 9-13' bgs Collect GW grab sample from 19-23' bgs Collect GW grab sample from 28-32' bgs
10						
15						
20						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-059/MIP-012 SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Former Union Trailer/MIP-012
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.2' bgs START: 3/1/05 FINISH: 3/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1		2.5/4		Asphalt, silty clay, sand and gravel fill, HF, stiff to medium brown to orange-brown, damp	PID = 0.0 PPM
1	1-4				Sand, SP, brown with dark brown/ black layers from ~ 1-1.8' bgs, random gravel, moist to wet at ~ 2.2' bgs	
2						
3						
4						
5						Collect GW grab sample from 8-12' bgs Collect GW grab sample from 16-20' bgs Collect GW grab sample from 22-26' bgs
10						
15						
20						

CH2MHILL

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-060/MIP-050 SHEET 1 OF 1

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South and East of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3' bgs START: 3/1/05 FINISH: 3/1/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.8/4		Asphalt, silt, sand and gravel fill, HF, dark brown/black, dry, loose	PID = 0.0 PPM
1	0.5-1.5				Silty sandy clay and gravel fill, HF, light grey to brown, damp to moist at 1.2' bgs, loose	
2	1.5-2				Sand, SP, brown to brown/black, moist, ~ 2" zone of small sand-sized coal pieces 1.7-1.9' bgs	Collect soil sample from 1.5-2' bgs
3	2-4				Sand, SP, dark grey with some black layering near top of interval, moist to wet at ~ 3' bgs; trace decomposed organic matter near bottom of interval	
4						
5						Collect GW grab sample from 5-9' bgs Collect GW grab sample from 20-24' bgs Collect GW grab sample from 28-32' bgs
10						
15						
20						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-061	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Trim Building/Former AST Area

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 2.7' bgs START: 3/14/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.4/4		Silty gravel fill, HF, light grey to white, damp, loose	PID = 0.0 ppm
1	0.7-1.3				Silty, sandy, clay and gravel fill, HF, brown to orange-brown, damp, loose	
2	1.3-2.3				Clayey sand and gravel fill, HF, medium to fine-grained sands, dark brown/black from 1.3-1.6' bgs, tan/brown 1.6-2.3' bgs, moist	Collect soil sample from 1.6-2.3' bgs Collect from second soil core geotech sample from 1.3-2.3' bgs
3	2.3-4				Sand and gravel, SP, coarse to medium-grained, grey-brown, moist to wet at 2.7' bgs; gravel is well rounded	PID = 0.0 ppm ∇ water table at 2.7' bgs
4						
5	4-9.2		4/4		Sand and gravel, SP, coarse to medium-grained, grey brown, wet; gravel is well rounded	PID = 0.0 ppm Collect geotech sample from 4-6' bgs
6						Collect soil sample from 6-8' bgs
7						
8			2.7/4			
9						
10	9.2-12				Sand, SP, fine- to medium-grained, grey brown, wet	PID = 0.0 ppm
11						
12						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-061 SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Trim Building/Former AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/14/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-13.7		3.3/4		Sand and gravel, SP/SW, fine to coarse sands, brown, wet, coarse sands from 12-12.5' and 13.3-13.7' bgs; gravel is subangular to well-rounded	PID = 0.0 ppm
13						
	13.7-16				Silty sand, SP/SM, fine-grained sand, trace gravel, brown to dark brown, wet	End 3/14/05
14						
15						
16	16-20		1.3-4		Silty sand, SP/SM, fine-grained, brown, wet	Start 3/15/05 PID = 0.0 ppm
17						
18						
19						
20	20-24		2.5-4		Silty sand, SP/SM, fine-grained, grey-brown to brown, wet	PID = 0.0 ppm
21						
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-061	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North of Trim Building/Former AST Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/14/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	24-26.5		3/3		Silty sandy clay, CL, brown, wet, medium	Collect soil sample from 24-24.5' bgs Collect geotech sample from 24.5-26.5' bgs
25						PID = 0.0 ppm
26						
	26.5-27				Till, silty clay and gravel, CL, dark grey/brown, stiff	PID = 0.0 ppm
27					EOB @ 27' bgs, refusal	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-062	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Chip Wringer, Outside Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		2.3/4		Silty clay and gravel fill, HF, white to light brown, dry, loose	~ 9" of concrete above soil PID = 0.9 ppm
1	0.8-1.3				Silty clay and gravel fill, HF, orange brown, damp, medium	PID = 29.4 ppm Collect soil sample from 0.8-2.3' bgs
	1.3-4				Sand and gravel, SP, fine to coarse sand, dark brown, loose, moist	PID = 222 ppm, "sheen," "diesel fuel" odor
2						
3						
4	4-8		1.5/4		Sand and gravel, SP, fine to coarse sand, dark brown, wet, loose	Collect soil sample from 4-5.5' bgs PID = 158 ppm, "sheen," "diesel fuel" odor
5						
6						
7						
8	8-12		NA	Liner bent in tube, pour contents out	Sand and gravel, SP, brown to dark brown, wet; sands are fine to medium	PID = 12.3 ppm
9						
10						
11						
12						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-062 SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Chip Wringer, Outside Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-13.7		3/4		Sand, SP, brown, wet; sands are fine to medium	PID = 8.9 ppm
13						
	13.7-14.4				Sand and gravel, SP, fine to coarse sand, brown, wet	PID = 41.9 ppm
14						
	14.4-16				Sand, SP, brown, wet, fine to medium sands	PID = 6.8 ppm
15						
16						
	16-20		3.1/4		Sand, SP, brown, wet, trace gravel from 16.8-17.3' bgs; sand is fine- to medium-grained	PID = 35.1 ppm
17						
18						
19						
20						
	20-24.6		3/4		Silty sand, SP/SM, grey/brown to brown, wet; trace gravel, sand is fine- to medium-grained	PID = 156.3 ppm Collect geotech sample from 20.5-22' bgs
21						
22						Collect soil sample from 22-24.6' bgs
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-062	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Chip Wringer, Outside Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
25	24.6-25.5		0.6/1.5		Silty sand and gravel, SP/SM, brown, wet; gravel is angular to rounded; trace shell fragments, gravel of various mineralogy	PID = 91.6 ppm "Sheen" on water out of borehole
26					Refusal @ 2.25' bgs	
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-063	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Northwest Loading Dock
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		3.4/4		Silty sand and gravel fill, HF, light brown, dry, loose	
1	0.7-1.5				Silty sandy clay fill, HF, orange/brown, dry, loose	PID = 0.0 ppm
2	1.5-6				Silty sand, SP/SM, light brown to dark grey, black streaks near top of interval, moist to wet at 4' bgs; trace gravel, sands are fine to medium	Collect geotech sample from 1.5-2.5' bgs
3						Collect soil sample from 2.6-3.4' bgs
4			4/4			∇ water table @ ~4' bgs (rough estimate)
5						
6	6-6.3				Silty clay, OL, black, wet, highly organic, partially decomposed plant matter	PID = 0.0 ppm
7	6.3-7				Sand, SP, light brown, wet, trace gravel; sands are fine to medium	Collect geotech sample from 6.5-7.5' bgs
	7-8				Sand and gravel, SP, grey-brown, wet; trace shell fragments; gravels are well rounded	Collect soil sample from 7.5-8' bgs PID = 0.0 ppm
8	8-8.3		3.6/4		Gravel, SP, various colors, wet; rounded gravels	
9	8.3-12.7				Sand and gravel, SP, grey-brown, wet, trace shell fragments	PID = 0.0 ppm
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-063	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Northwest Loading Dock

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: Estimated ~ 4' bgs (rough estimate) START: 3/15/05 FINISH: 3/15/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12.7-23.5				Silty sand, SP/SM, brown, wet; trace gravel and shell fragments	PID = 0.0 ppm
13					13	
14					14	
15					15	
16			3.1/4		16	PID = 0.0 ppm
17					17	
18					18	
19					19	
20			2.5/3.5		20	Collect geotech sample from 20.5-22' bgs
21					21	PID = 0.0 ppm
22					22	Collect soil sample from 22-22.5' bgs
23					23	
24					Refusal at 23.5' bgs 24	

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-064	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Property, Near Fan Rooms
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.3	2.4/4			Silty, sandy gravel fill, HF, brown to dark brown to dark brown, damp to wet at 1' bgs, loose (1-1.3' gravel zone)	Collect soil sample from 0-1' bgs PID = 1.9 ppm ∇ water table @ ~1' bgs
1	1.3-4				Silty sand, SP/SM, grey-brown, wet	PID = 0.5 ppm
2						
3		3/4				
4	4-6.2				Silty sand and gravel, SP/SM, grey-brown, wet	PID = 0.6 ppm Sheen Collect soil sample from 4-6.6' bgs
5						
6	6.2-6.6				Gravel, GP, well-rounded to angular, grey, wet	PID = 9.7 ppm Sheen, "diesel" fuel odor
7	6.6-12				Sand and gravel, SP, medium sands, brown, wet	
8		3.4/4				PID = 0.5 ppm
9						
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-064	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Property, Near Fan Rooms
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-17.2	3.3/4			Sand and gravel, SP, fine to coarse sands, brown to grey-brown, wet; decomposing organic matter (tree branch) at ~ 14.7' bgs, just above gravelly layer, and at 17-17.2' bgs	PID = 0.0 ppm
13						
14						
15						
16			1.5/2			Collect soil sample from 16-17.5' bgs
17	17.2-18				Sand, SP, brown, wet, fine- to medium-grained sands	PID = 0.0 ppm
18					Refusal at 18' bgs	
19						
20						
21						
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-065	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Property Near MIP-028
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		3.6/4		Asphalt, silty sandy clay and gravel fill, HF, dark brown to orange-brown, dry to damp at 0.7' bgs	PID = 0.0 ppm Collect geotech sample from 0.9-1.9' bgs
1	0.9-1.6				Sand, SP, brown to dark brown, damp, fine to medium sands	
	1.6-5.6				Sand, SP, brown, damp to wet at 2.7' bgs	
2						Collect soil sample from 1.9-2.7' bgs
						∇ water table @ ~ 2.7' bgs
3						
4						PID = 0.0 ppm
			3.6/4			
5						
	5.6-8				Sand and gravel, SP, brown, wet, fine to coarse sands	
6						Collect soil sample from 6-6.4' bgs PID = 0.0 ppm Collect geotech sample from 6.4-7.4' bgs
7						
8	8-21		3/4		Sand, SP, grey-brown, wet, fine to medium sands; trace granules and gravel, gravel is rounded	PID = 0.0 ppm
9						
10						
11						
12						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-065	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Property Near MIP-028
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.3/4		Very coarse sand interval 12-12.5' bgs	PID = 0.0 ppm
13						
14						
15						
16			3/4			PID = 0.0 ppm
17						
18						
19						Collect soil sample from 19.5-20' bgs
20			1/1			Collect geotech sample from 20-21' bgs
21					EOB, refusal at 21' bgs	
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-066	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along Eastern Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.2				Topsoil fill, sandy, HF, dark brown, dry, loose	
	0.2-3.4		3.8/4		Sand, SP, brown, damp to wet at ~ 2.1' bgs; medium sands	Collect soil sample from 0.5-1' bgs PID = 0.8 ppm
1						Collect geotech sample from 1-2' bgs
2						∇ water table @ ~ 2.1' bgs
3						
	3.4-4				Sand, SP, grey, wet, medium sands	PID = 1.1 ppm
4	4-10.3		4/4		Sand, SP, brown to grey-brown, wet, medium with trace coarse sands and gravel (rounded)	Collect soil sample from 4.5-5' bgs PID = 0.0 ppm
5						Collect geotech sample from 5-6.5' bgs
6						
7						
8			3/4		Black laminations/bedding at 8.2-8.3' bgs and 9.1-9.2' bgs	
9						
10	10.3-20				Sandy, SP, grey to grey-brown, wet; sands are fine to medium-grained; trace granules (rounded) and coarse sands	PID = 0.0 ppm
11						
12						

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along Eastern Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.3/4			PID = 0.0 ppm
13						
14						
15						PID = 0.0 ppm
16			2.8/4			PID = 0.0 ppm
17						
18						
19						PID = 0.0 ppm
20	20-29		NA	Liner bent in sampler, empty contents out	Sand, SP, grey, wet; sand is fine-grained	PID = 0.0 ppm
21						
22						
23						
24						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-066	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along Eastern Access Road
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/16/05 FINISH: 3/16/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			NA	Liner bent in sampler, empty contents out	Silty sand, SP/SM, grey, wet.	
25						PID = 0.0 ppm
26						
27						
28			2.8/3			Collect soil sample from 28-29' bgs
29						PID = 0.0 ppm
	29-29.6				Silty clay, CH, brown, wet, "sticky," high plasticity, > 4" ribbons	Collect geotech sample from 29-30' bgs
	29.6-30.1				Silty sandy gravel, GM, grey/brown, wet; gravel is subangular to subrounded	PID = 0.0.ppm
30	30.1-31				Silty clay and gravel till, CL, brown, wet, stiff	PID = 0.0 ppm
31						
					EOB @ 31.0' bgs (refusal)	
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-067	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS
LOCATION: Near Loading Dock in Shipping and Receiving/MIP-021
ELEVATION:
DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: water table @ ~ 6' bgs START: 3/17/05 FINISH: 3/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0	0-3.2		3.6/4		Silty sandy clay and gravel fill, HF, brown, dark brown, orange-brown, dry, loose	PID = 9.7 ppm
1						
2						PID = 17.3 ppm
3	3.2-5.8				Silty sand and gravel fill, HF, orange-brown, dry, loose	PID = 15 ppm
4			3.3/4			PID = 12.3 ppm Collect soil sample from 4.5-5' bgs
5						Collect geotech sample from 5-6' bgs
6	5.8-6.5				Sandy silty clay, GL, dark brown/black, some decomposing organic material, wet	∇ water table @ ~6' bgs PID = 1.7 ppm Collect soil sample from 6-6.5' bgs PID = 8.1
7	6.5-12				Sand and gravel, SP, brown, wet; sand is fine to granular; gravel is subrounded to rounded	Collect geotech sample from 6.5-7.5' bgs
8			2.8/4			PID = 45.7 ppm
9						
10						PID = 15.7 ppm
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-067	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS
LOCATION: Near Loading Dock in Shipping and Receiving/MIP-021
ELEVATION:
DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: water table @ ~ 6' bgs
START: 3/17/05
FINISH: 3/17/05
LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-16.5		2.9/4		Sand, SP, brown, wet; trace gravel; sand is fine to medium	PID = 24.9 ppm
13						PID = 55.9 ppm
14						PID = 121 ppm
						PID - 53.5 ppm
15						
						PID - 61.4 ppm
16						PID = 63.8
			2.7/4		Silty sand, SP/SM, grey with dark brown/ black laminations, wet; decomposing organics	PID = 72.5
	16.5-17					
17	17-19.3				Sand and gravel, SP, grey brown to brown, wet; sand grains medium to granular; gravel subangular to rounded	PID - 70.4
18						
19	19.3-28.6				Silty sand, SP/SM, grey to grey/brown, wet; some black laminations (few); sand is very fine to medium	PID = 91.8
20			2.3/4			
						PID = 97.6
21						
22						PID = 33.3
23						
						PID = 34.5
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-067	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Loading Dock in Shipping and Receiving/MIP-021

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: water table @ ~ 6' bgs START: 3/17/05 FINISH: 3/17/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.7/4			PID = 3.2
25						PID = 0.0
26						PID = 0.0
27						PID = 0.0
28						Collect geotech sample from 28-28.8' bgs No soil sample collected
	~ 28.6-28.8	2.9/3.5			Silty sandy gravel, GM, unable to determine colors, wet	
29	28.8-31.5				Silty clay till, CL, grey/brown, wet	
30						
31						PID = 0.0 ppm
					EOB @ 3.15' bgs (refusal)	
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-068	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Metal Plating Room
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT w/Macrocore Sampler
WATER LEVELS: ~ 5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-5		3.4/4		Silty sand and gravel fill, HF, brown to orange-brown, loose, dry	
1						Collect geotech sample 1-2.5' bgs
2						
3						Collect soil sample 2.5-3.4' bgs
4			3/4			
5	5-8				Sand and gravel, SP, brown, wet, medium sands, subangular to rounded gravel	∇ water table @ ~ 5' bgs Collect soil sample from 5-5.5' bgs Collect geotech sample from 5.5-6.5' bgs
6						
7						
8	8-8.8		2.8/4		Sand and gravel, SP/SW, brown, wet, coarse to granular sands (very coarse sands)	
9	8.8-16				Sand, SP, light brown, wet, trace gravel, rounded to subrounded	
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-068	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Metal Plating Room
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT w/Macrocore Sampler
WATER LEVELS: ~ 5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3/4			Odor similar to "machinery" throughout interval
13						
14						
15						
16	16-20		3.1/4		Sand, SP, grey-brown, wet; sands are fine to medium	Odor similar to "machinery"/"burnt oil" throughout interval
17						
18						
19						
20	20-28.5		3/4		Silty sand, SP/SM, grey, wet; sands are fine-grained, some cross-bedding is visible as black laminations	Odor similar to "machinery"/"burnt oil"
21						
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-068	SHEET 3 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Metal Plating Room
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT w/Macrocore Sampler
WATER LEVELS: ~ 5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			
25						Odor similar to "machinery"/"burnt oil"
26						
27						
28						Fine-grained sandstone in sampler shoe
	28.5-28.6 28.6-31.5		3.5/3.5		Gravel, GP/GM, grey, wet, subangular Silty clay till, CL, grey, dry, very stiff	Collect soil sample from 28-28.6' bgs
29						
30						
31						
32					EOB @ 31.5' bgs	
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-069	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Near MIP-043
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT
WATER LEVELS: ~ 5.5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		2/4		Silty sand and gravel fill, HF, orange-brown to grey, dry	PID = 0.0 ppm Collect soil sample from 0-1.7' bgs
1	0.9-6				Sand and gravel fill, HF, light brown to brown, dry to moist; wood (decomposed) at 1.7-1.9' bgs	PID = 0.0 ppm
2						
3						
4			2.9/4			Collect geotech from 4-5.5' bgs
5						∇ water table @ ~ 5.5' bgs
6	6-6.3				Silty clay, OH, dark brown, wet	Collect geotech sample from 5.5-6.5' bgs
	6.3-9.2				Sand and gravel, SP, grey-brown, wet; medium sands	PID = 0.0 ppm
7						
8			2.4/4			Collect soil sample from 8-10.4' bgs
9	9.2-9.4				Sand and gravel, SP, grey, wet, very coarse sands	
	9.4-15.4				Sand, SP, grey to grey/brown, wet; medium sands, trace gravel	PID = 0.0 ppm
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-069	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Near MIP-043

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT

WATER LEVELS: ~ 5.5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					Trace coarse sand from 12.1-12.3' bgs	
			3.6/4			PID = 0.0 ppm
13						
14						
15						
	15.4-20				Sand, SP, grey, wet; sand is fine- to medium-grained; trace gravel	
16						Odor similar to "machinery" or "burnt oil"
			2.8/4			PID = 0.0 ppm
17						
18						
19						
20						
	20-25.5				Silty sand, SP/SM, grey, wet; sand is very fine- to fine-grained; trace gravel	PID = 0.0 ppm
			2.5/4			
21						
22						
						PID = 0.0 ppm
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-069	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Near MIP-043
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: Geoprobe 6610 DT
WATER LEVELS: ~ 5.5' bgs START: 3/21/05 FINISH: 3/21/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3.4/4			Collect soil sample from 24-25.5' bgs
25						
26	25.5-27.5				Silty sand and gravel, SP/SM, grey, wet; gravel of various sizes; subangular to rounded gravel	PID = 0.0 ppm
27						Collect geotech sample from 26.5-27.5' bgs
28	27.5-28				Silty clay, CL, dark grey, very stuff, dry	PID = 0.0 ppm
					EOB @ 28' bgs	
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-070	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Just West of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe 2" O.D. Macrocore Sampler
WATER LEVELS: ~ 5.5' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.9		3.8/4		Silty sandy clay and gravel fill, HF, orange-brown to dark brown, dry to damp at ~ 1' bgs, loose	PID = 2.1
1	0.9-2				Sandy fill, HF, light brown, damp, trace gravel; sand is fine- to medium-grained	PID = 3.4
2	2-2.7				Sandy clay fill, HF, brown to dark brown, damp, trace gravel	PID = 2.4
	2.7-3.3				Sandy fill, HF, light brown, damp	PID = 2.1
3	3.3-5				Clayey sand fill, HF, dark brown to brown, damp	Collect soil sample from 3.3-4.5' bgs PID = 14.3
4			2.9/4			Collect geotech sample from 4.5-5.5' bgs
5	5-8				Sand, SP, light brown, damp to wet at 5.5' bgs; trace gravel	PID = 0.0 ppm ∇ water table @ ~ 5.5' bgs
6						
7						
8	8-8.4		3/4		Sand and gravel, SP, light brown, wet; gravel is subrounded to well rounded; very coarse sands from 8-8.4' bgs; otherwise, medium sands	Collect geotech sample from 8-9.5' bgs PID = 0.0 ppm
	8.4-17.6				Sand, SP, brown, wet, trace gravel; sands are medium with occasional coarse sands	
9						PID = 0.0 ppm Collect soil sample from 9.5-10.5' bgs
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-070	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Just West of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe 2" O.D. Macrocore Sampler
WATER LEVELS: ~ 5.5' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4			
13						
14						
15						
16						
			2.3/4			PID = 0.0 ppm
17						
	17.6-17.8				"Gravels increase just above silty clay;" silty clay, CL, grey, wet, very soft	PID = 0.0 ppm Odor similar to "burnt oil"
18	17.8-21.3				Sand, SP, grey/brown, wet, fine to medium sands	
19						
20						
21						
	21.3- ?	Not able to determine-- sample liner stuck			Silty sand, SM/SP, grey, wet	PID = 0.0 ppm Odor similar to "burnt oil"
22						
23						
24						PID = 0.0 ppm

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-070	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Metal Working Area Just West of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe 2" O.D. Macrocore Sampler
WATER LEVELS: ~ 5.5' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4			
25					25	
26					26	PID = 0.0 ppm
27					27	
28					28	Collect soil sample from 28-28.9' bgs PID = 0.0 ppm
			1.9/3			
29					29	Collect geotech sample from 28.9-29.9' bgs
30					30	
31					31	
					EOB at 31' bgs (refusal)	
32					32	
33					33	
34					34	
35					35	
36					36	

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-071	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: ~ 100' East of Former Solvent Recycling Unit
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.4' bgs START: 3/22/05 FINISH: 3/22/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.6/4		Silty, sandy clay and gravel, HF, orange-brown, dry, loose	PID = 0.0 ppm
	0.5-1.1				Sand and gravel fill, HF, light brown, dry; sand is predominantly fine grained	PID = 0.0 ppm
1	1.1-5.7				Sandy fill, HF, light brown, dry to wet at 5.4' bgs, loose; trace clay lenses in sand; trace gravel	
2						Collect geotech sample from 2.4-3.4' bgs PID = 0.0 ppm
3						
4			3/4			Collect soil sample from 4-5' bgs
5						PID = 0.0 ppm ∇ water table @ ~ 5.4' bgs
	5.7-6.4				Silty clayey sand, SC, grey to black, wet; trace gravel, trace decomposed organics	PID = 0.0 ppm
6	6.4-16				Sand, SP, grey-brown to grey, wet; trace gravel (rounded); fine to medium sands; occasional dark grey cross-bedding	PID = 0.0 ppm
7						
8			3.1/4			Collect geotech sample from 8.3-9.3' bgs
9						Collect soil sample from 9.3-10.3' bgs PID = 0.0 ppm Odor similar to "burnt oil"
10						
11						PID = 0.0 ppm
12						

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS | LOCATION: ~ 100' East of Former Solvent Recycling Unit
ELEVATION: | DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.4' bgs | START: 3/22/05 | FINISH: 3/22/05 | LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.7/4			PID = 0.0 ppm
13						
14						Odor similar to "burnt oil"
15						
16	16-23.6	Liner stuck, could not determine recovery			Sand, SP, light grey to light brown, wet, sands predominantly fine-grained; occasional grey-colored cross-bedding	PID = 12.4 ppm Odor similar to "burnt oil"
17						
18						PID = 6.6 ppm
19						
20			2/4			PID = 17.0 ppm
21						PID = 23.9 ppm
22						PID = 15.3 ppm Odor similar to "burnt oil"
23						
24	23.6-25.1				Silty sand, SM/SP, light grey to light brown, wet; sands are very fine to fine-grained	PID = 15.1 ppm

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-071	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS | LOCATION: ~ 100' East of Former Solvent Recycling Unit

ELEVATION: | DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 5.4' bgs | START: 3/22/05 | FINISH: 3/22/05 | LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/3			PID = 43.8 Collect geotech sample from 24-25' bgs
25	25.1-27				Sand, SP, grey/brown, wet; sands are fine- to medium-grained	Collect soil sample from 25-26.1' bgs PID = 20.6
26						
27					EOB @ ~ 27' bgs (refusal)	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-072	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just North of Seahorse Drive, South of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.5/4		Silty clay fill, HF, dark brown, damp, medium (topsoil)	PID = 0.0 ppm
	0.5-2				Silty sand and gravel fill, HF, dark brown, moist, loose	
1						Collect geotech sample from 1-2' bgs PID = 0.0 ppm
2	2-2.8				Sand, SP, brown to light brown, moist, fine to medium sands, loose	Collect soil sample from 2-2.8' bgs PID = 0.0 ppm
3	2.8-6.1				Sand, SP, light tan/brown, wet, loose, medium to coarse sands; trace gravel; coarse sand layer from 5.7-5.9' bgs	PID = 0.0 ppm
4			4/4			Collect soil sample from 4-5' bgs
5						Collect geotech sample from 5-6' bgs
6	6.1-13.2				Sand, SP, grey/brown, wet, loose, medium to coarse sands; trace gravel, dark grey laminations/cross-bedding from 6.3-6.5' bgs	PID = 0.0 ppm
7						PID = 0.0 ppm
8			3.1/4			
9						PID = 0.0 ppm
10						
11						PID = 0.0 ppm
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-072	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just North of Seahorse Drive, South of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.7/4			
13	13.2-20.9				Sand, SP, grey to grey/brown, wet; fine to medium sands; trace gravel	PID = 0.0 ppm
14						
15						
16			2.7/4			PID = 0.0 ppm
17						
18						
19						PID = 0.0 ppm
20			3/4			
21	20.9-26.6				Silty sand, SM/SP, light grey/brown, wet; predominantly fine sands	PID = 0.0 ppm
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-072	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just North of Seahorse Drive, South of Triax
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.8' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			1.4/2.6			Collect soil sample from 24-24.4' bgs Collect geotech sample from 24.4-25.4' bgs
25						PID = 0.0 ppm
26						
27					EOB @ 26.6' bgs (refusal)	
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-073	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along North Ditch NE Corner of Site
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1.5' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.3		2.5/4		Sandy topsoil and gravel fill, HF, brown to light brown, damp, loose	PID = 0.0 ppm
1	0.3-4.8				Sand, SP, light brown, damp to wet at ~ 1.5' bgs; trace gravel	PID = 0.0 ppm
2						
3						PID = 0.0 ppm
4			3/4			
5	4.8-8				Silty sand, SM, dark grey, wet, trace gravel; sands are fine to medium; gravel is angular to rounded	Odor: "organics" PID = 0.0 ppm
6						
7						
8	8-13.8		2.6/4		Sand, SP, grey to grey/brown, wet, fine to coarse sands; trace gravel; very coarse sands from 8-8.4' bgs and 9.8-10.3' bgs are dark grey to black in color; black coating on gravels	PID = 0.0 ppm PID = 0.0 ppm Odor: "organics"
9						
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-073	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along North Ditch NE Corner of Site
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1.5' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/4		Very coarse sands and gravel from 12-12.5' bgs are dark grey to black in color; black coating on gravels;	Odor: "organics"
13						
14	13.8-25				Silty sand, SP, grey/brown, wet; trace gravel; sands are very fine to medium	PID = 0.0 ppm
15						
16			2.2/4			PID = 0.0 ppm
17						
18						
19						
20			2.6/4			
21						
22						
23						
24						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-073	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Along North Ditch NE Corner of Site
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 1.5' bgs START: 3/23/05 FINISH: 3/23/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4			PID = 0.0 ppm
25	25-25.3				Silty sandy clay, SC, grey/brown, wet, laminations throughout interval	
	25.3-28.5				Silty sand, SM/SP, grey brown, wet, laminations from 25.3-25.7' bgs	
26						
27						
28						
29					EOB @ 28.5' bgs (refusal)	
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-074	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South of Triax/MIP-070
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4		3.5/4		Asphalt, silty sandy gravel fill, HF, grey to brown dry, loose	PID = 0.0 ppm Collect soil sample from 0.4-0.8' bgs
1	0.4-1.7				Silty sandy clay and gravel fill, HF, brown to light tan, dry to damp, loose, some brick pieces at bottom of interval	Collect geotech sample from 0.5-1.5' bgs
2	1.7-2.4				Silty, sand and gravel fill, HF, black, moist to wet at 2.1' bgs	PID = 0.0 ppm Collect soil sample from 2.1-2.4' bgs
3	2.4-4.8				Sand, SP, light brown, wet, trace gravel, mediun sands	Possible "foundry sands" PID = 0.0 ppm PID = 0.0 ppm Collect geotech sample from 2.5-3.5' bgs
4			3.6/4			
5	4.8-6.1				Sand and gravel, SP, light brown, wet, medium sands	PID = 1.4 ppm
6	6.1-6.7				Sand and gravel, GP/SP, light brown, wet, very coarse sands, gravel is rounded to subrounded	PID = 2.8 ppm
7	6.7-10.7				Sand, SP, light brown, wet, trace gravel and medium sands	PID = 7.4 ppm
8			3.6/4			
9						PID = 9.9 ppm
10						PID = 8.1 ppm
11	10.7-17.3				Sand, SP, grey/brown, wet, fine to medium sands, trace coarse sands and gravel	PID = 7.6 ppm
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-074	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South of Triax/MIP-070
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
12		Liner stuck; unable to determine recovery				PID = 11.0 ppm
13						PID = 9.9 ppm
14						
15						
16			2.5/4			PID = 10.8 ppm
17	17.3-25.2				Silty sand, SM/SP, grey to grey/brown, wet, dark grey silt laminations near top of interval	PID = 6.7 ppm
18						
19						PID = 5.8 ppm
20			2.9/4			
21						PID = 6.7 ppm
22						Collect soil sample from 22 to 22.9' bgs PID = 7.1 ppm
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-074	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Just South of Triax/MIP-070
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.1' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.2/3			Collect geotech sample from 24.1-25.1' bgs PID = 44.8 ppm
25	25.2-25.6				Silty clay, CH, brown, wet, elastic	PID = 0.2 ppm
	25.6-25.8				Silty gravel, GM, grey, wet	
26	25.8-27				Till, silty clay, CL, grey, damp, stiff, trace gravel	
27					EOB @ 27' bgs (refusal)	
28						
29						
30						
31						
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-075	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.8		3.7/4		Silty clay topsoil fill, HF, dark brown, damp, medium soft	PID = 0.0 ppm
1	0.8-2.3				Silty clay and gravel fill, HF, orange-brown, damp, medium soft	PID = 0.0 ppm
2	2.3-3.4				Silty, clayey, sand and gravel fill, HF, brown to orange-brown, damp to moist	Collect geotech sample from 2.4-3.3' bgs PID = 0.0 ppm Collect soil sample from 2.4-2.8' bgs
3	3.4-5.9				Sand, SP, grey to light brown, wet, trace gravel; medium sands	PID = 0.0 ppm
4			2.9/4			
5						PID = 0.0 ppm Collect soil sample from 5.4-5.9' bgs PID = 0.0 ppm
6	5.9-6.6				Sand and gravel, GP, light brown, wet; gravel is subangular to well-rounded	Collect geotech sample from 5.9-6.9' bgs
7	6.6-13.3				Sand, SP, light brown, wet, trace gravel; mediun sands, trace coarse sands	PID = 0.0 ppm
8			2.7/4		Zone of gravel 8.3-8.4' bgs	PID = 0.0 ppm
9					Coarse sands 9.7-10.2' bgs	PID = 0.0 ppm
10						PID = 0.0 ppm
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-075	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: West Side of Corporate Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' bgs START: 3/24/05 FINISH: 3/24/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			1.7/4		Coarse sand bedding at 12.1 to 12.3' bgs and 12.9' bgs	PID = 0.0 ppm
13	13.3-16.6				Sand, SP, light brown to grey/brown, wet, fine sands, trace gravel and coarse sands	PID = 0.0 ppm
14						
15						
16			2.8/4		Coarse sands from 16-16.6' bgs	PID = 0.0 ppm
	16.6-21.3				Silty sand, SM/SP, grey to grey-brown, wet, dense, silt laminations from 16.6-16.9' bgs are dark grey in color, sands are fine-grained; trace shell fragments	PID = 0.0 ppm
17						
18						
19						
20			3.1/4			
21	21.3-21.8				Sandy gravel, GP, grey-brown, wet; gravel is well-rounded and uniform in size	Took photograph; PID = 0.0 ppm
	21.8-24.4				Silty sand, SP/SM, grey/brown, wet; silt dark grey laminations start at 22.4' bgs; trace gravel and shell fragments	PID = 0.0 ppm
22						Collect soil sample from 22.4-22.9' bgs
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-075	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: West Side of Corporate Building
ELEVATION: — DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 3.4' bgs — START: 3/24/05 — FINISH: 3/24/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	24.4-24.8		2.5/4		Silty sandy clay and gravel, GC, brown, wet	Collect geotech sample from 24-24.8' bgs
	24.8-28				Till, silty clay, CL, grey, dry, stiff; trace gravel throughout (~ 0.3' in diameter)	PID = 0.0 ppm
25						
26						
27						
28					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-076	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: North Parking Lot, along North Guardrail
ELEVATION: — DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.3' bgs — START: 3/25/05 — FINISH: 3/25/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.4				Asphalt, silty, sandy gravel fill, HF, dark brown, dry	PID = 0.0 ppm
	0.4-0.9		3.2/4		Sandy, clay and gravel fill, HF, orange-brown, damp	Some sands may be of "foundry sand" origin PID = 0.0 ppm
1	0.9-2.3				Sand, SP, light brown, moist, loose; trace gravel; sands are coarse-grained	
2						∇ water table @ ~ 2.3' bgs
	2.3-4				Sand, SP, tan/brown, wet; sands are fine- to medium-grained	PID = 0.0 ppm
3						
						PID = 0.0 ppm
4	4-6		3.9/4		Sand and gravel, SP, light brown, wet; coarse-grained sands; gravel is subrounded to rounded	PID = 0.0 ppm
5						
6	6-8				Sand and gravel, SP, light grey to grey/brown, wet; sands are fine to medium with coarse sand/gravel lenses (6.9-7.1' bgs and 7.5-7.7' bgs)	PID = 0.0 ppm
7						
8	8-13.3		2.7/4		Sand, SP, grey/brown to grey, wet; trace gravel; sands are fine to medium with coarse sand/ gravel lenses at 8.6-8.7' bgs and coarse sands at 12.6-13.3' bgs	PID = 0.7 ppm PID = 4.8 ppm PID = 9.5 ppm PID = 7.9 ppm PID = 2.1 ppm
9						
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-076	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot, along North Guardrail
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.3' bgs START: 3/25/05 FINISH: 3/25/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/4			
						PID = 15.3 ppm
13						PID = 2.1 ppm
	13.3-20.7				Silty sand, SM/SP grey/brown to grey, wet, fine sands; clay lens at 14.1-14.13' bgs; trace gravel	PID = 0.0 ppm
14						
15						
16			2.7/4			PID = 0.0 ppm
17						PID = 0.0 ppm
18						PID = 0.0 ppm
19						
20	20.7-20.9		3/4		Silty sand, SP/SM, grey/brown, wet; trace gravel; fine sands	
	20.9-21.3				Clayey, sandy, silt, ML, grey/brown, wet, laminations	
21	21.3-25				Silty sand, SP/SM, grey/brown, wet, trace gravel; fine sands, trace shell fragments	
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-076	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: North Parking Lot, along North Guardrail
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.3' bgs START: 3/25/05 FINISH: 3/25/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.5/4			
25	25-25.4				Sandy, silty gravel, GM, grey/brown, wet, shell fragments, some whole shells intact; gravel is subangular to subrounded	
	25.4-28				Silty clay, CL, brown, damp, stiff (till)	
26						
27						
28						
					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-077	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Larsen Marine, Southeast Corner of IO Service Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 3/28/05 FINISH: 3/28/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.6		3.8/4		Asphalt, silty, sand and gravel fill, HF, light brown to black, dry, loose	PID = 0.0 ppm
	1.6-4				Sandy fill, HF, light brown to dark brown, damp to wet at ~ 2.8' bgs; sand is medium-grained	Collect geotech sample from 1.6-2.6' bgs Collect soil sample from 2.6-2.8' bgs PID = 0.0 ppm
1						
2						
3						
4	4-10.3		Liner stuck, could not determine recovery		Sand, SP, grey to light brown, wet, trace gravel; sand is medium-grained, trace gravel is subrounded to well-rounded	Collect soil sample from 4-6' bgs PID = 0.0 ppm
5						
6						
7						
8			3.5/4			PID = 0.0 ppm Collect geotech sample from 8.5-10' bgs
9						
10					Coarse sands from 10-10.3' bgs	PID = 0.0 ppm
	10.3-14				Sand, SP, grey to grey/brown, wet; fine to medium-grained sands	
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-077	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Larsen Marine, Southeast Corner of IO Service Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 3/28/05 FINISH: 3/28/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			3.1/4			PID = 0.0 ppm
13						
14	14-16.2				Sand, SP, dark grey, wet; medium sands, trace coarse sands, trace gravel	"Organic" odor PID = 0.0 ppm
15						
16	16.2-25.3		2.8/4		Silty sand, SP/SM, dark grey, wet; trace gravel; sand is medium to fine-grained, dense	PID = 0.0 ppm
17						
18						PID = 0.0 ppm
19						
20			2.7/4			PID = 1.6 ppm
21						PID = 3.6 ppm
22						PID = 3.2 ppm
23						PID = 3.9 ppm
24						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-077	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Larsen Marine, Southeast Corner of IO Service Building
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~2.8' bgs START: 3/28/05 FINISH: 3/28/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			PID = 1.3 ppm Collect soil sample from 24-24.3' bgs Collect geotech sample from 24.3-35.3' bgs
25	25.3-28				Silty clay till, CL, light brown, dry, stiff	
26						
27						
28					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-078	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Outside SW Corner of Hallway to HAZMAT Storage Area

ELEVATION: DRILLING CONTRACTOR: IPS

DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe

WATER LEVELS: ~ 0.6' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.6		3.1/4		Sandy, silt and gravel fill, HF, light tan to grey, damp	PID = 1.3 ppm; collect soil sample from 0-0.6' bgs; ∇ water table @ ~ 0.6' bgs
1	0.6-1				Sand and gravel fill, HF, black, wet; possible foundry sand	PID = 0.0 ppm
	1-1.4				Sand and gravel fill, HF, tan to grey, wet	PID = 0.0 ppm
	1.4-4				Sand, SP, brown to grey, wet; medium sands	Collect geotech sample from 1.5-2.5' bgs Collect soil sample from 2.5-3.1' bgs
2						
3						
4	4-5.1		Could not determine, liner stuck in sampling tube		Sand and gravel, SP, brown to grey-brown, wet; medium to coarse sands; gravel is flat and well-rounded; trace silt	"Sheen" on tube when pulled up from subsurface Odor similar to diesel fuel; PID = 0.0 ppm
5	5.1-10.4				Sand, SP, brown to grey/brown, wet; trace gravel; fine to coarse sands, but predominantly medium	PID = 0.0 ppm
6						
7						
8			3.1/4			
9						
10					Coarse sands from 10.2-10.4' bgs	
	10.4-14.3				Sand, SP, brown to grey/brown, wet; trace gravel, fine to medium sands; trace coarse sands; (sand with gravel from 10.8-10.9' bgs	
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-078	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: Outside SW Corner of Hallway to HAZMAT Storage Area
ELEVATION: — DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 0.6' bgs — START: 3/29/05 — FINISH: 3/29/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.9/4		Coarse sands from 12.1-12.3' bgs and 13.3-14.3' bgs	PID = 0.0 ppm
13						
14	14.3-20				Sand, SP, brown, wet; very fine to medium sands; trace silt	
15						
16			1.1/4			Collect geotech sample from 16.1-17.1' bgs PID = 0.0 ppm
17						
18					Refusal at ~ 18' bgs; offset ~ 5' to southeast	Wood in sampler shoe; will offset to continue sampling
19						
20	20-20.3		1.9/2		Silty sand and gravel, SP/GM, brown/grey, wet	Collect soil sample from 20-20.7' bgs
	20.3-20.7				Silty, sandy, gravel, GM, brown/grey, wet	PID = 0.0 ppm
	20.7-22				Silty clay till, CL, brown, dry; trace gravel from 20.7-21' bgs	
21						
22					EOB @ 22' bgs (refusal)	
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-079	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: SE Grassy Area Near Corporate Building/ MIP-059
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.5		3.6/4		Topsoil fill, HF, dark brown, damp	PID = 0.0 ppm
1	0.5-1.4				Silty clay and gravel fill, HF, orange-brown, damp	PID = 0.0 ppm
2	1.4-6				Sand, SP, grey/brown to brown, damp to wet at 2.7' bgs; trace gravel, sands are medium with some coarse sand intervals	Collect geotech sample from 1.6-2.6' bgs Collect soil sample from 1.4-2.7' bgs PID = 0.2 ppm ∇ water table @ ~ 2.7' bgs Collect soil sample from 2.7-3.6' bgs
3						PID = 1.8 ppm
4			3.3/4			
5						PID = 1.7 ppm Collect geotech from 4.5-6' bgs
6	6-6.4				Sand and gravel, SP/GP, brown, wet, gravel is subangular and rounded; sand is medium-grained; gravel up to 0.1' in diameter	
7	6.4-14.1				Sand, SP, brown, wet, trace gravel; medium sands; trace coarse sands	PID = 3.5 ppm
8			3.1/4		Coarse sands 8-8.5' bgs	PID = 8.2 ppm
9						PID = 24.5 ppm
10						PID = 28.7 ppm
11						PID = 53.5 ppm
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-079	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS — LOCATION: SE Grassy Area Near Corporate Building/ MIP-059
ELEVATION: — DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs — START: 3/29/05 — FINISH: 3/29/05 — LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			
						PID = 24.7 ppm
13						
						Odor similar to "solvent"
14						
	14.1-18.5				Sand, SP, grey/brown, wet; fine sands; trace silt trace shell fragments and coarse sands; some shells are fully intact	PID = 50.5 ppm
15						
16						
			2.8/4			PID = 67.1 ppm
17						
						PID = 91.0 ppm
					Trace coarse sand, gravel, and shell fragments 17.7 to 17.73' bgs	
18						
						PID = 100.8 ppm
	18.5-20.6				Sand, SP, grey to grey-brown, wet; sands are fine- to coarse-grained; shell fragments throughout	Odor similar to "solvent"
19						PID = 48.5 ppm
20						
			2.5/4			PID = 32.4 ppm
	20.6-21.7				Sand, SP, brown, wet; sands are medium- to coarse-grained; coarse sands and gravel 21.2-21.5' bgs; clayey sands 20.3-20.4' bgs	Collect geotech sample from 20.6-21.6' bgs
21						PID = 53.6 ppm
	21.7-24.9				Silty sand, SP/SM, grey, wet; trace clay near bottom of interval	PID = 48.4 ppm
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-079	SHEET 3 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: SE Grassy Area Near Corporate Building/ MIP-059
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 2.7' bgs START: 3/29/05 FINISH: 3/29/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			1.8/2.5			Collect soil sample from 24-24.9' bgs
	24.9-25.2				Silty clay, CL/ML, brown, wet, soft	PID = 3.8 ppm
25						
	25.2-25.4				Silty, sandy, gravel and clay, GM/GC, grey/brown, wet; clay has high plasticity (CH), soft to very soft	PID = 2.6 ppm
	25.4-26.5				Silty clay till, CL, brown, dry, stiff	
26						
					EOB @ 26.5' bgs (refusal)	
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-080	SHEET 1 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: NW Corner of New Die Cast Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.8' bgs START: 3/30/05 FINISH: 3/30/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-0.7		2.9/4		Silty, sandy clay and gravel fill, HF, brown, dry, loose	
	0.7-4.8				Sand fill, HF, light brown, dry; trace gravel; trace clay; medium sands	PID = 0.0 ppm
1						Collect geotech sample from 1-2.5' bgs
2						PID = 0.0 ppm
						Collect soil sample from 2.5-2.9' bgs
3						
4			3.1/4			
5	4.8-16				Sand, SP, brown, damp to wet at 5.8' bgs; fine to coarse sands; trace gravel	PID = 0.0 ppm
6						Collect soil sample from 5.8-7.1' bgs
7						
8			2.8/4			
					Coarse sands and gravel from 8.4-8.5' bgs	PID = 0.0 ppm Collect soil sample from 8-9.7' bgs
9						
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-080	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: NW Corner of New Die Cast Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.8' bgs START: 3/30/05 FINISH: 3/30/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.3/4			
13						
					Coarse sands and gravel from 13.5-16' bgs	PID = 0.0 ppm
14						
15						
16	16-18.5		2.7/4		Sand, SP, grey/brown, wet; fine sands, trace coarse sands, trace shell fragments	PID = 0.0 ppm Odor similar to "burnt oil"
					Coarse sands, trace gravel and shell fragments from 16.2-16.4' bgs; gravel is well rounded	
17						
18						PID = 0.0 ppm
	18.5-21.7				Silty sand, SP/SM, grey to grey/brown, wet; fine sands, trace shell fragments	PID = 0.0 ppm Odor similar to "burnt oil"
19						
20			2.5/4			
21	21.1-21.4				Silty sandy clay, CL/SC, grey-brown, wet	PID = 0.0 ppm
	21.4-30.5				Silty sand, SP/SM, grey to grey/brown, wet; fine sands, trace shell fragments	PID = 0.0 ppm
22						
23						
24						

PROJECT NUMBER	BORING NUMBER
186305.FI.01	SO-080 SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: NW Corner of New Die Cast Area
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 5.8' bgs START: 3/30/05 FINISH: 3/30/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			Could not determine, liner stuck in sampler			PID = 0.0 ppm Odor similar to "burnt oil"
25						
26						
27						
28			2.6/4			Collect soil sample from 28-29' bgs
29						Collect geotech sample from 29-30.4' bgs
30						
	30.5-30.6				Silty, sandy gravel, GM, grey, wet; gravel is subangular	PID = 0.0 ppm
31	30-6-32				Silty clay till, CL, grey	PID = 0.0 ppm
32						
					EOB @ 32' bgs (refusal)	
33						
34						
35						
36						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-081	SHEET 1 OF 3

CH2MHILL

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Solvent Vapor Degreaser/MIP-085
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 4.9' bgs START: 3/30/05 FINISH: 3/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-1.4		1.9/4		Silty, sandy clay and gravel fill, HF, orange-brown to dark brown, dry; fine to medium sands	PID = 0.0 ppm Collect geotech sample from 0.3-1.4' bgs
1						
	1.4-4.4				Silty sand and gravel fill, HF, light brown, dry to wet; medium to coarse sands; trace clay and red brick fragments, loose	
2						PID = 0.0 ppm
3						
4						
	4.4-8.7		1.7/4		Silty, sandy clay and gravel fill, HF, dark brown, wet; trace red brick and possible slag/foundry sand materials; "oily throughout"; trace glass; subangular to angular gravel	PID = 0.0 ppm ∇ water table @ ~ 4.9' bgs "Oily"; "burnt oil" odor Collect soil sample from 4-4.9' bgs PID = 0.0 ppm
5						
6						
7						
8			2.9/4			Collect soil sample from 8-8.7' bgs Very "oily" at top of interval (~ 8' bgs)
	8.7-9.5				Sand, SP, black/brown, wet; fine to medium sands, trace coarse sands	PID = 0.0 ppm
9						
	9.5-12				Sand and gravel, SP/GP, light brown, wet; medium to coarse sands	
10						Collect geotech sample from 9.9-10.9' bgs PID = 0.0 ppm Less "oily"
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-081	SHEET 2 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Solvent Vapor Degreaser/MIP-085
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 4.9' bgs START: 3/30/05 FINISH: 3/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	12-16		2.8/4		Sand, SP, brown to grey/brown, wet; fine to medium sands, trace coarse sands, trace gravel (subrounded)	PID = 2.6 ppm
13						PID = 2.4 ppm
14						PID = 1.8 ppm
15						
16	16-24		2.8/4		Silty sand, SP/SM, grey/brown, wet; sands are fine-grained with trace medium and coarse sands; trace shell fragments and gravel (rounded) coarse sands and shell fragments 16.7-16.8' bgs	PID = 10.9 ppm PID = 16.7 ppm PID = 23.3 ppm PID = 16.9 ppm PID = 30.6 ppm PID = 44.9 ppm
17						
18						
19						
20			1.3/4			PID = 25.5 ppm
21						
22						
23						
24						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-081	SHEET 3 OF 3

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Near Solvent Vapor Degreaser/MIP-085
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 4.9' bgs START: 3/30/05 FINISH: 3/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	24-24.3		2.9/4		Sand and gravel, SP/GP, dark grey, wet; sands are coarse grained; shell fragments throughout	Collect geotech sample from 24-25' bgs Strong "solvent" odor
	24.3-28				Silty sand, SP, grey/brown, wet; sands are fine grained; trace gravel (rounded)	
25						Collect soil sample from 25-26' bgs
26						PID > 9,576 ppm; "out of range"
27						
28					EOB @ 28' bgs (refusal)	
29						
30						
31						
32						
33						
34						
35						
36						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-082	SHEET 1 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS LOCATION: Old Die Cast Area/MIP-029
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 6.1' bgs START: 3/30/05 FINISH: 3/31/05 LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL (FT)	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	0-6				Silty sand and gravel fill, HF, brown to orange/ brown, dry to damp at 1.4' bgs; gravel is angular to subangular; possible slag at 1.3-1.6' bgs	PID = 0.0 ppm
				1.9/4		
1						
2						PID = 0.0 ppm
3						
4			2.3/4			Collect soil sample from 4-5' bgs PID = 0.0 ppm
5						Collect geotech sample from 5-6' bgs
6	6-8				Sand, SP, light brown, damp to wet at 6.1' bgs; medium to fine sands	Odor similar to "burnt oil" PID = 0.0 ppm
7						
8	8-13.3		1.9/4		Sand, SP, grey/brown, wet; medium sands; trace gravel	PID = 0.0 ppm Collect soil sample from 8-8.8' bgs Collect geotech sample from 8.8-9.8' bgs
9						Odor similar to "burnt oil" PID = 0.0 ppm
10						
11						
12						

PROJECT NUMBER	BORING NUMBER	
186305.FI.01	SO-082	SHEET 2 OF 2

SOIL BORING LOG

PROJECT: OMC Plant 2 RI/FS   LOCATION: Old Die Cast Area/MIP-029
ELEVATION: DRILLING CONTRACTOR: IPS
DRILLING METHOD AND EQUIPMENT USED: 8M Geoprobe
WATER LEVELS: ~ 6.1' bgs   START: 3/30/05   FINISH: 3/31/05   LOGGER: C. LaCosse

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
			2.8/4			
13	13.3-17.3				Sand, SP, grey-brown, wet; fine sands; trace gravel	PID = 0.0 ppm 3/30/05: lost sampler down borehole
14						PID = 0.0 ppm
15						
16			2.7/4			PID = 0.0 ppm Collect geotech sample from 16-17.3' bgs
17	17.3-20				Silty sand, SP/SM, grey to grey/brown, wet	PID = 0.0 ppm Collect soil sample from 17.3-18.7' bgs
18						
19						
20			Unable to determine; lost sampler		N/A	Lost sampler down borehole
21						
22						
23						
24					EOB @ 23.5' bgs (refusal)	

Outboard Marine Corporation (OMC), Waukegan, Illinois

Data Quality Evaluation

This memorandum presents the data quality evaluation of the soil and water samples collected during the remedial investigation conducted at the Outboard Marine Corporation (OMC) Site in Waukegan, Illinois from January 2005 through May 2005. Two hundred fifty groundwater samples and one hundred sixty soil samples were collected and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), dissolved metals, total metals and cyanide, or a subset of these analyses under the contract laboratory program (CLP). All samples were analyzed accoding to CLP SOW *OLM04.3* and CLP SOW *ILM05.3*. In addition, quality assurance/quality control (QA/QC) samples were collected to aid in the assessment of data quality. The QA/QC samples collected were field duplicates, matrix spike/matrix spike duplicates, equipment blanks, and field blanks.

The data were reviewed by the USEPA to assess the accuracy, precision, and completeness using the criteria established in the National Functional Guidelines for Data Review. Data qualifiers were added by the USEPA when the QA/QC data indicated a bias.

Standard data qualifiers were used as a means of classifying the data as to their conformance to QA/QC requirements. The data qualifiers are defined as follows:

[U] The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

[J] The associated value is an estimated quantity. Used when the data indicated the presence of a component was below the stated reporting limit or when the direction of analytical bias was unknown.

[UJ] The component was analyzed for but not detected at a level equal to or greater than the reporting limit. This flag was used when QA/QC data indicated a low bias in the analytical data.

[R] Rejected. The data is of insufficient quality to be deemed acceptable as reported or otherwise qualified.

Groundwater Samples

CH2M HILL conducted a review of the validation performed by the USEPA for the groundwater samples in case numbers 33840, 33893, 33900, 34141, and 34167. The review was based on the validation summary reports provided by the USEPA. One hundred percent of the data were selected for review. **Table 1** lists the case numbers, sample delivery groups (SDGs), and number of samples that were reveiwed.

TABLE 1
Groundwater Sample Summary
OMC – Waukegan, IL

SDG	Case	Number of Samples
E2GZ5	33893	11
E2HB1	33900	11
E2GT1	33840	15
E2HH0	34141	20
E2HN8	34141	8
E2HH6	34141	18
E2GQ8	33840	1
ME2HH0	34141	20
ME2HP5	34141	3
ME2HK5	34141	17
ME2HM1	34141	20
ME2HS7	34167	20
ME2HW5	34167	19
ME2HY6	34167	10
ME2HQ3	34167	19
E2HR2	34167	20
E2HQ3	34167	18

Upon review of the validation case narratives, the validated results show no QC issues affecting the quality and usability of the data. No corrective action by CH2M HILL was deemed necessary or taken; therefore the analytical results, as reported and qualified herein, are of good quality, and may be used to make project decisions.

Soil Samples

CH2M HILL conducted a review of the validation performed by the USEPA for the soil samples in case numbers 33816, 33840, 33893, 33900, 33966, 33985, and 34014. The review was based on the validation summary reports provided by the USEPA. One hundred percent of the data were selected for review. **Table 2** lists the case numbers, sample delivery groups (SDGs), and number of samples that were reveiwed.

TABLE 2
Soil Sample Summary
OMC – Waukegan, IL

SDG	Case	Number of Samples
E2HC7	33966	9
E2HB0	33900	4
E2GS8	33840	7
E2GZ0	33840	5
E2GQ8	33840	20
E2GX0	33840	20
E2GN8	33840	20
E2GZ8	33893	4
E2GK0	33816	19
E2GL8	33816	19
E2HF6	33985	3
E2HD6	33985	20
E2HF9	34014	11

Upon review of the validation case narratives, CH2M HILL observed the validated results show no QC issues affecting the quality and usability of the data. No corrective action by CH2M HILL was deemed necessary or taken; therefore the analytical results, as reported and qualified herein, are of good quality, and may be used to make project decisions.

In addition, CH2M HILL conducted a review between the electronic results and the corresponding validation reports submitted by USEPA. Approximately 10 percent of the data submitted was subject to a review. No issues were found affecting the data reported, therfore no corrective action was deemed ncecesary.

Conclusions

All of the validation reports reviewed were found to fall within the applicable National Functional Guidelines for Data Review. Therefore it is deemed that the validation performed by the USEPA is correct and complete for those samples analyzed by the CLP. Completeness of the analytical data was assessed for compliance with the amount of data required for decision making. The completeness goal for the project data is 100 percent. Qualified data, if not rejected, can still be used to make project decisions and is considered to be compliant data. The percent completeness for the sediment data was 100 percent. Thus the data completeness goal stated in Quality Assurance Project Plan (CH2M HILL, December 2004) was met for this sampling event.

APPENDIX C
OMC Plant 2—Soil Samples
Metals

	Station:	SO-046
	Sample:	ME2GT4
	Interval:	1.2 - 2.2
	Date:	2/10/2005
Metals		
ALUMINUM (FUME OR DUST)	ug/Kg	1,100,000
ARSENIC	ug/Kg	1,700 J
BARIUM	ug/Kg	6,200 J
BERYLLIUM	ug/Kg	78 J
CADMIUM	ug/Kg	160 J
CALCIUM METAL	ug/Kg	22,300,000
CHROMIUM, TOTAL	ug/Kg	3,700
COPPER	ug/Kg	4,600
IRON	ug/Kg	4,160,000
LEAD	ug/Kg	10,500 J
MAGNESIUM	ug/Kg	13,000,000
MANGANESE	ug/Kg	115,000
VANADIUM (FUME OR DUST)	ug/Kg	11,000
ZINC	ug/Kg	28,400

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	S-29	S-29	S-30	S-30	S-31	S-31	S-32	S-32
	Sample:	S-29,2'	S-29,6'	S-30,2'	S-30,6'	S-31,2'	S-31,6'	S-32,2'	S-32,6'
	Interval:	2 - 2	6 - 6	2 - 2	6 - 6	2 - 2	6 - 6	2 - 2	6 - 6
	Date:	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	16,000	1,300	1,200	1,300	3,200	55	6,200	160
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	S-33	S-33	S-34	S-34	S-35	S-35	S-36	S-36
	Sample:	S-33,10'	S-33,8'	S-34,2'	S-34,6'	S-35,2'	S-35,6'	S-36,2'	S-36,6'
	Interval:	10 - 10	8 - 8	2 - 2	6 - 6	2 - 2	6 - 6	2 - 2	6 - 6
	Date:	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	31	12 J	14,000,000	410	200	210	960	3,700
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	S-37	S-37		S-38 S·	S-39	S-39	S-40	S-40
	Sample:	S-37,2'	S-37,6'	S-38	S· 38,6' 6	S-39,10'	S-39,8'	S-40,2'	S-40,6'
	Interval:	2 - 2	6 - 6	38,2'	2 · - 6	10 - 10	8 - 8	2 - 2	6 - 6
	Date:	5/20/2005	5/20/2005	2 5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	960	1,500	140	930	9.1 J	280	76	2,800
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	S-41	S-41	S-42	S-42	S-43	S-43	S-44	S-44
	Sample:	S-41,2'	S-41,6'	S-42,2'	S-42,6'	S-43,2'	S-43,6'	S-44,2'	S-44,6'
	Interval:	2 - 2	6 - 6	2 - 2	6 - 6	2 - 2	6 - 6	2 - 2	6 - 6
	Date:	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	270	3,900	430	250	130	160	510	210
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	S-45	S-45	S-46	S-46	S-47	S-47	SO-001	SO-001
	Sample:	S-45,2'	S-45,6'	S-46,2'	S-46,6'	S-47,2'	S-47,6'	E2GM4	E2GM5
	Interval:	2 - 2	6 - 6	2 - 2	6 - 6	2 - 2	6 - 6	0 - 0.5	0.7 - 1.6
	Date:	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005	2/2/2005	2/2/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	260	500	620	310	660	17,000	1,000 J	5,300
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-002	SO-002	SO-003	SO-004	SO-004	SO-005	SO-006	SO-006
	Sample:	E2GM6	E2GM7	E2GK0	E2GN4	E2GN5	E2GN6	E2GN8	E2GN9
	Interval:	0 - 0.5	0.5 - 1.3	0 - 0.5	0 - 0.5	0.6 - 1.4	0 - 0.5	0 - 0.5	0.7 - 0.8
	Date:	2/2/2005	2/2/2005	1/31/2005	2/2/2005	2/2/2005	2/2/2005	2/7/2005	2/7/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	28 J	340	200 J	480	34 J	400 J	240	25,000
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	190	18,000
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	2,500

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-007	SO-007	SO-008	SO-009	SO-010	SO-010	SO-011	SO-012
	Sample:	E2GP0	E2GP1	E2GK2	E2GK4	E2GK6	E2GK7	E2GP2	E2GP4
	Interval:	0 - 0.5	0.7 - 1.4	0 - 0.5	0 - 0.5	0 - 0.5	1.5 - 2.5	0 - 0.5	0 - 0.5
	Date:	2/7/2005	2/7/2005	1/31/2005	1/31/2005	1/31/2005	1/31/2005	2/7/2005	2/7/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	1,800 J	37 J	3,500 J	160 J	180	11 J	39 J	370 J
PCB-1254 (AROCHLOR 1254)	ug/Kg	1,300 J	30 J	ND	ND	ND	ND	43	360
PCB-1260 (AROCHLOR 1260)	ug/Kg	150 J	ND	ND	ND	190	ND	ND	74

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		SO-013	SO-014	SO-014	SO-014	SO-015	SO-015	SO-016	SO-016
Sample:		E2GP6	E2GX0	E2GX1	E2GX2	E2GR8	E2GR9	E2GX3	E2GX4
Interval:		0 - 0.5	0 - 0.5	1.5 - 2	1.5 - 2	0.3 - 0.8	0.8 - 1.2	0 - 0.5	1.5 - 2
Date:		2/7/2005	2/17/2005	2/17/2005	2/17/2005	2/9/2005	2/9/2005	2/17/2005	2/17/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	480,000 J	370,000 J	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	440 J	480,000	ND	ND	13,000	1,800 J	410	3,600 J
PCB-1254 (AROCHLOR 1254)	ug/Kg	320 J	190,000	ND	ND	15,000	1,900	270 J	2,800
PCB-1260 (AROCHLOR 1260)	ug/Kg	58 J	210,000 J	ND	ND	3,800	180 J	210	430 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-017	SO-017	SO-018	SO-018	SO-019	SO-020	SO-020	SO-021
	Sample:	E2GX5	E2GX6	E2GX7	E2GX8	E2GX9	E2GK8	E2GK9	E2GL0
	Interval:	0 - 0.5	1.4 - 2	0 - 0.5	2.8 - 3.3	0 - 0.5	0 - 0.5	0.5 - 1.5	0 - 0.5
	Date:	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/1/2005	2/1/2005	2/1/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	29,000	190	97 J	12,000	440	53 J	1,100 J	120
PCB-1254 (AROCHLOR 1254)	ug/Kg	25,000	160	39 J	3,200 J	230	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	2,800 J	ND	26 J	200 J	56	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-021	SO-022	SO-022	SO-023	SO-023	SO-024	SO-024	SO-025	SO-025
	Sample:	E2GL1	E2GL2	E2GL3	E2GL4	E2GL5	E2GL6	E2GL7	E2GM8	E2GM9
	Interval:	1 - 2	0 - 0.5	1 - 2	0 - 0.5	1.5 - 2.5	0 - 0.5	1.5 - 2.5	0 - 0.5	2.2 - 2.5
	Date:	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/2/2005	2/2/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	5,400 J	64	95	32 J	2300	53	28 J	54 J	790,000 J
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-026	SO-026	SO-026	SO-027	SO-027	SO-028	SO-028	SO-029	SO-029
	Sample:	E2GP8	E2GP9	E2GQ0	E2GL8	E2GL9	E2GM0	E2GM1	E2GM2	E2GM3
	Interval:	0 - 0.5	1 - 2	1 - 2	0 - 0.5	1 - 2	0 - 0.5	1.5 - 2.5	0 - 0.5	1.5 - 2.5
	Date:	2/7/2005	2/7/2005	2/7/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	1,100 J	40 J	ND	ND	32,000	16 J	50	ND	2,000 J
PCB-1254 (AROCHLOR 1254)	ug/Kg	970 J	77 J	26 J	8.2 J	ND	ND	ND	110 J	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	95 J	38 J	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-030	SO-030	SO-030	SO-031	SO-032	SO-032	SO-033	SO-033	SO-034
	Sample:	E2GY1	E2GY2	E2GY3	E2GQ2	E2GS5	E2GS6	E2GS7	E2GS8	E2GS9
	Interval:	0 - 0.5	2 - 3	2 - 3	1.5 - 2.5	0 - 0.5	14 - 1.6	0 - 0.5	2.4 - 2.6	0 - 0.5
	Date:	2/17/2005	2/17/2005	2/17/2005	2/7/2005	2/9/2005	2/9/2005	2/9/2005	2/9/2005	2/9/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	550 J	300	710	830 J	1,900	2,900	300 J	92	3,700
PCB-1254 (AROCHLOR 1254)	ug/Kg	330	200	450	820	1,800	1,500 J	560 J	94 J	3,700
PCB-1260 (AROCHLOR 1260)	ug/Kg	40 J	29 J	60 J	66 J	190 J	180 J	ND	30 J	350 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		SO-034	SO-035	SO-036	SO-036	SO-037	SO-037	SO-038	SO-038	SO-039
Sample:		E2GT0	E2GQ4	E2GQ5	E2GQ6	E2GS0	E2GS1	E2GQ7	E2GQ8	E2GQ9
Interval:		2 - 3	1 - 2	0 - 0.5	1 - 2	0 - 0.5	1 - 2	0 - 0.5	1 - 2	0 - 0.5
Date:		2/9/2005	2/8/2005	2/8/2005	2/8/2005	2/9/2005	2/9/2005	2/8/2005	2/8/2005	2/8/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	120	2,300	34	3,800 J	920	710	270 J	770	33 J
PCB-1254 (AROCHLOR 1254)	ug/Kg	66	1,800	28 J	2,200	730	240 J	330 J	250 J	38
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	250	ND	340 J	150 J	55 J	73 J	31 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-039	SO-040	SO-040	SO-041	SO-041	SO-041	SO-042	SO-042	SO-043
	Sample:	E2GR0	E2GR1	E2GR2	E2GR3	E2GR4	E2GR5	E2GR6	E2GR7	E2GS2
	Interval:	0.6 - 1.3	0 - 0.5	1.5 - 2	0 - 0.5	1.4 - 2.4	1.4 - 2.4	0 - 0.5	1.5 - 2.5	0 - 0.5
	Date:	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/9/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	46	670	920	1,900	1,800	2,100	7,900	17,000	26,000
PCB-1254 (AROCHLOR 1254)	ug/Kg	53 J	330 J	840	1,900	1,600	1,800	8,700	13,000	20,000 J
PCB-1260 (AROCHLOR 1260)	ug/Kg	35 J	97 J	110 J	210 J	180 J	190 J	1100 J	1200	3,500 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		SO-043	SO-045	SO-045	SO-045	SO-045	SO-052	SO-053	SO-053	SO-062
Sample:		E2GS3	E2GN0	E2GN1	E2GN2	E2GN3	E2GY9	E2GZ1	E2GZ2	E2HC9
Interval:		2.8 - 3	0 - 0.5	0 - 0.5	1.5 - 2.5	1.5 - 2.5	0.5 - 1.3	2.3 - 3.8	2.3 - 3.8	4 - 5.5
Date:		2/9/2005	2/2/2005	2/2/2005	2/2/2005	2/2/2005	2/17/2005	2/17/2005	2/17/2005	3/15/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	32,000	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	4,500
PCB-1248 (AROCHLOR 1248)	ug/Kg	ND	71 J	9.5 J	18 J	22 J	490	100 J	60	ND
PCB-1254 (AROCHLOR 1254)	ug/Kg	960	ND	ND	ND	ND	ND	80 J	58 J	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	790	ND	ND	ND	ND	ND	64	52	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-064	SO-064	SO-064	SO-069	SO-070	SO-071	SO-074	SO-074	SO-074
	Sample:	E2HD0	E2HD1	E2HD2	E2HE5	E2HF0	E2HF2	E2HF6	E2HF7	E2HF8
	Interval:	0 - 1	4 - 6.6	16 - 17.2	0 - 1.7	3.3 - 4.5	4 - 5	0.4 - 0.8	2.1 - 2.4	22 - 22.9
	Date:	3/16/2005	3/16/2005	3/16/2005	3/21/2005	3/22/2005	3/22/2005	3/24/2005	3/24/2005	3/24/2005
PCBs										
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	9,400 J	120 J	33 J	110 J	4,000 J	110 J	420 J	1,500 J	ND
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	290	ND	46	52	ND

APPENDIX C
OMC Plant 2—Soil Samples
PCBs

	Station:	SO-079	SO-081	SO-081	SO-081	SO-081	SO-082	SO-082	SO-082
	Sample:	E2HF9	E2HG2	E2HG3	E2HG4	E2HG8	E2HG5	E2HG6	E2HG9
	Interval:	1.4 - 2.7	4 - 4.9	8 - 8.7	8 - 8.7	25 - 26.9	4 - 5	8 - 8.7	17.3 - 18.7
	Date:	3/29/2005	3/30/2005	3/30/2005	3/30/2005	3/31/2005	3/30/2005	3/30/2005	3/31/2005
PCBs									
PCB-1232 (AROCHLOR 1232)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242 (AROCHLOR 1242)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/Kg	31 J	110 J	660 J	750 J	1,000	16,000	370 J	1,600
PCB-1254 (AROCHLOR 1254)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260 (AROCHLOR 1260)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Pesticides

	Station:	SO-074	SO-074	SO-074
	Sample:	E2HF6	E2HF7	E2HF8
	Interval:	0.4 - 0.8	2.1 - 2.4	22 - 22.9
	Date:	3/24/2005	3/24/2005	3/24/2005
Pesticides				
ALDRIN	ug/Kg	1.8	2.4	2.1
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	ug/Kg	1.8	2.4	2.1
ALPHA ENDOSULFAN	ug/Kg	1.8	2.8	2.1
ALPHA-CHLORDANE	ug/Kg	1.8	2.4	2.1
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	ug/Kg	1.8	2.4	2.1
BETA ENDOSULFAN	ug/Kg	1.3	4.6	4.0
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	ug/Kg	1.8	2.4	2.1
DIELDRIN	ug/Kg	3.4	4.6	4.0
ENDOSULFAN SULFATE	ug/Kg	3.4	4.6	4.0
ENDRIN	ug/Kg	1.8	1.5	4.0
ENDRIN ALDEHYDE	ug/Kg	3.4	2.0	4.0
ENDRIN KETONE	ug/Kg	1.3	1.8	0.28
GAMMA BHC (LINDANE)	ug/Kg	1.8	1.5	2.1
GAMMA-CHLORDANE	ug/Kg	1.8	2.4	2.1
HEPTACHLOR	ug/Kg	1.8	2.4	2.1
HEPTACHLOR EPOXIDE	ug/Kg	1.8	2.4	2.1
METHOXYCHLOR	ug/Kg	3.2	1.8	20
P,P'-DDD	ug/Kg	3.4	4.6	4.0
P,P'-DDE	ug/Kg	13	12	4.0
P,P'-DDT	ug/Kg	17	9.9	4.0
TOXAPHENE	ug/Kg	180	240	200

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-002	SO-003	SO-006	SO-006	SO-007	SO-007	SO-008	SO-009	SO-010
	Sample:	E2GM6	E2GK0	E2GN8	E2GN9	E2GP0	E2GP1	E2GK2	E2GK4	E2GK6
	Interval:	0 - 0.5	0 - 0.5	0 - 0.5	0.7 - 0.8	0 - 0.5	0.7 - 1.4	0 - 0.5	0 - 0.5	0 - 0.5
	Date:	2/2/2005	1/31/2005	2/7/2005	2/7/2005	2/7/2005	2/7/2005	1/31/2005	1/31/2005	1/31/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	950 J	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHYLENE	ug/Kg	ND	2,100 J	ND	ND	ND	300 J	ND	290 J	ND
ACETOPHENONE	ug/Kg	ND	ND	55 J	100 J	ND	ND	ND	ND	ND
ANTHRACENE	ug/Kg	1,700 J	ND	13 J	51 J	ND	130 J	ND	270 J	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	9,000 J	10,000 J	100 J	190 J	980 J	1,600	1,700 J	3,000 J	ND
BENZO(A)PYRENE	ug/Kg	10,000	19,000	140 J	350 J	1,600 J	2,800	3,400 J	4,700 J	ND
BENZO(B)FLUORANTHENE	ug/Kg	11,000 J	24,000	150 J	320 J	1,800 J	2,900 J	4,000 J	6,100 J	ND
BENZO(G,H,I)PERYLENE	ug/Kg	5,300 J	12,000	110 J	220 J	1,000 J	1,800	2,000 J	3,400 J	ND
BENZO(K)FLUORANTHENE	ug/Kg	4,400 J	8,200 J	110 J	200 J	700 J	2,700	ND	2,300 J	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	ND	ND	ND	480 J	230 J	ND	ND	ND
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	ND	ND	ND	ND	ND	55 J	ND	130 J	ND
CHRYSENE	ug/Kg	8,200 J	11,000	150 J	220 J	1,100 J	2,000	1,600 J	3,200 J	ND
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	4,700 J	49 J	100 J	670 J	1,400	ND	ND	ND
DIBENZOFURAN	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	140 J	180 J
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	26,000	9,100 J	320 J	320 J	1,300 J	1,300	1,200 J	2,300 J	ND
FLUORENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	6,700 J	15,000	100 J	200 J	1,300 J	2,400	2,200 J	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-002	SO-003	SO-006	SO-006	SO-007	SO-007	SO-008	SO-009	SO-010
	Sample:	E2GM6	E2GK0	E2GN8	E2GN9	E2GP0	E2GP1	E2GK2	E2GK4	E2GK6
	Interval:	0 - 0.5	0 - 0.5	0 - 0.5	0.7 - 0.8	0 - 0.5	0.7 - 1.4	0 - 0.5	0 - 0.5	0 - 0.5
	Date:	2/2/2005	1/31/2005	2/7/2005	2/7/2005	2/7/2005	2/7/2005	1/31/2005	1/31/2005	1/31/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	4,900 J	ND	110 J	69 J	ND	120 J	ND	400 J	ND
PHENOL	ug/Kg	ND	ND	ND	ND	470 J	ND	ND	ND	ND
PYRENE	ug/Kg	29,000 J	14,000	240 J	380	1,700 J	2,200	3,200 J	2,200 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-011	SO-011	SO-012	SO-012	SO-013	SO-014	SO-014	SO-014	SO-015
	Sample:	E2GP2	E2GP3	E2GP4	E2GP5	E2GP7	E2GX0	E2GX1	E2GX2	E2GR8
	Interval:	0 - 0.5	1.2 - 1.9	0 - 0.5	1.6 - 2.6	1.4 - 1.9	0 - 0.5	1.5 - 2	1.5 - 2	0.3 - 0.8
	Date:	2/7/2005	2/7/2005	2/7/2005	2/7/2005	2/7/2005	2/17/2005	2/17/2005	2/17/2005	2/9/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	89 J	R	68 J	ND
2-METHYLNAPHTHALENE	ug/Kg	700 J	ND	ND	ND	ND	ND	500	250 J	43 J
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	R	63 J	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	110 J	87 J	79 J	ND
ACENAPHTHENE	ug/Kg	440 J	ND	ND	ND	ND	ND	ND	130 J	430
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/Kg	ND	40 J	ND	43 J	ND	74 J	ND	120 J	ND
ANTHRACENE	ug/Kg	950 J	ND	ND	ND	ND	ND	ND	ND	1,200
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	38 J	ND	ND	42 J
BENZO(A)ANTHRACENE	ug/Kg	1,900 J	ND	ND	140 J	ND	ND	ND	ND	2,200
BENZO(A)PYRENE	ug/Kg	1,500 J	ND	ND	150 J	ND	ND	ND	140 J	2,200
BENZO(B)FLUORANTHENE	ug/Kg	1,100 J	ND	ND	130 J	ND	ND	ND	190 J	1,100 J
BENZO(G,H,I)PERYLENE	ug/Kg	1,100 J	ND	ND	150 J	ND	ND	ND	210 J	1200
BENZO(K)FLUORANTHENE	ug/Kg	1,000 J	ND	ND	120 J	ND	ND	ND	200 J	2,000 J
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	130 J	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	380 J	ND	ND	ND	49 J	ND	2,800 J	ND	ND
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	690 J	ND	ND	ND	ND	ND	ND	ND	500 J
CHRYSENE	ug/Kg	3,100 J	ND	ND	170 J	44 J	ND	ND	290 J	2,100
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	520
DIBENZOFURAN	ug/Kg	400 J	ND	ND	ND	ND	ND	ND	69 J	190 J
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	21,000 J	73,000 J	24,000 J	ND
FLUORANTHENE	ug/Kg	4,700	ND	490 J	260 J	ND	ND	ND	150 J	4,100
FLUORENE	ug/Kg	530 J	ND	ND	ND	ND	ND	ND	120 J	390
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	1,300 J	ND	ND	55 J	ND	ND	ND	320 J	1,100

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-011	SO-011	SO-012	SO-012	SO-013	SO-014	SO-014	SO-014	SO-015
	Sample:	E2GP2	E2GP3	E2GP4	E2GP5	E2GP7	E2GX0	E2GX1	E2GX2	E2GR8
	Interval:	0 - 0.5	1.2 - 1.9	0 - 0.5	1.6 - 2.6	1.4 - 1.9	0 - 0.5	1.5 - 2	1.5 - 2	0.3 - 0.8
	Date:	2/7/2005	2/7/2005	2/7/2005	2/7/2005	2/7/2005	2/17/2005	2/17/2005	2/17/2005	2/9/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	120 J	83 J	120 J
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	130 J	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	5,700	ND	ND	220 J	ND	ND	ND	250 J	3,600
PHENOL	ug/Kg	ND	ND	ND	ND	ND	20,000	300 J	120 J	120 J
PYRENE	ug/Kg	5,100	ND	450 J	440	44 J	ND	ND	140 J	4,700

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-015	SO-016	SO-016	SO-017	SO-017	SO-018	SO-018	SO-019	SO-021
	Sample:	E2GR9	E2GX3	E2GX4	E2GX5	E2GX6	E2GX7	E2GX8	E2GX9	E2GL0
	Interval:	0.8 - 1.2	0 - 0.5	1.5 - 2	0 - 0.5	1.4 - 2	0 - 0.5	2.8 - 3.3	0 - 0.5	0 - 0.5
	Date:	2/9/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/1/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	100 J	ND	74 J	ND	ND	ND	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	1,400	44 J	42 J	210 J	ND	ND	ND	ND	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	ug/Kg	4,600	100 J	81 J	460	45 J	54 J	ND	ND	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	7,900	320 J	230 J	1800	81 J	81 J	1,600 J	ND	ND
BENZO(A)PYRENE	ug/Kg	9,500	350 J	200 J	1500	97 J	65 J	890 J	ND	54 J
BENZO(B)FLUORANTHENE	ug/Kg	8,000 J	390 J	190 J	1,200 J	72 J	ND	ND	40 J	73 J
BENZO(G,H,I)PERYLENE	ug/Kg	4,000	730	320 J	2,200	83 J	88 J	ND	140 J	44 J
BENZO(K)FLUORANTHENE	ug/Kg	9,500	270 J	150 J	1,400	88 J	ND	ND	ND	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	52 J	ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	60 J	47 J	40 J	ND	ND	ND	46 J	ND
CAPROLACTAM	ug/Kg	ND	ND	99 J	ND	ND	ND	210 J	ND	ND
CARBAZOLE	ug/Kg	2,500	84 J	61 J	460	ND	ND	ND	ND	ND
CHRYSENE	ug/Kg	9,500	440	230 J	2,000	88 J	180 J	1,200	55 J	50 J
DIBENZ(A,H)ANTHRACENE	ug/Kg	2,400 J	140 J	120 J	850	ND	68 J	ND	ND	ND
DIBENZOFURAN	ug/Kg	630	ND	ND	120 J	ND	ND	ND	ND	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	44 J	ND	44 J	ND	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	20,000	740	460	4,800	200 J	66 J	ND	62 J	84 J
FLUORENE	ug/Kg	1,500	42 J	44 J	170 J	ND	ND	ND	ND	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	3,800	350 J	290 J	1,700	72 J	80 J	ND	81 J	54 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-015	SO-016	SO-016	SO-017	SO-017	SO-018	SO-018	SO-019	SO-021
	Sample:	E2GR9	E2GX3	E2GX4	E2GX5	E2GX6	E2GX7	E2GX8	E2GX9	E2GL0
	Interval:	0.8 - 1.2	0 - 0.5	1.5 - 2	0 - 0.5	1.4 - 2	0 - 0.5	2.8 - 3.3	0 - 0.5	0 - 0.5
	Date:	2/9/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/1/2005
NAPHTHALENE	ug/Kg	190 J	ND	ND	80 J	ND	ND	ND	ND	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	48 J	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	17,000	520	340 J	3,200	200 J	110 J	ND	ND	ND
PHENOL	ug/Kg	39 J	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/Kg	20,000	830	490	5,900	160 J	110 J	1,100 J	58 J	82 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-021	SO-023	SO-023	SO-024	SO-025	SO-026	SO-026	SO-026	SO-028
	Sample:	E2GL1	E2GL4	E2GL5 1.5	E2GL6	E2GM8	E2GP8	E2GP9	E2GQ0	E2GM0
	Interval:	1 - 2	0 - 0.5	- 2.5	0 - 0.5	0 - 0.5	0 - 0.5	1 - 2	1 - 2	0 - 0.5
	Date:	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/2/2005	2/7/2005	2/7/2005	2/7/2005	2/1/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	81 J	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	ND	ND	ND	ND	2,000 J	ND	ND	ND	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	ug/Kg	ND	ND	ND	ND	3,700 J	ND	ND	ND	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	39 J	1,400 J	58 J	50 J	4,600 J	ND	81 J	61 J	ND
BENZO(A)PYRENE	ug/Kg	ND	1,700 J	67 J	48 J	3,000 J	ND	100 J	76 J	ND
BENZO(B)FLUORANTHENE	ug/Kg	45 J	2,000 J	94 J	74 J	4,000 J	ND	91 J	100 J	ND
BENZO(G,H,I)PERYLENE	ug/Kg	ND	1,000 J	50 J	ND	ND	ND	58 J	71 J	ND
BENZO(K)FLUORANTHENE	ug/Kg	ND	ND	ND	ND	1,600 J	ND	58 J	77 J	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	58 J	ND	ND	ND	ND	51 J	ND	ND	3,100 J
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	ND	ND	ND	ND	2,200 J	ND	ND	ND	ND
CHRYSENE	ug/Kg	42 J	2,200 J	73 J	69 J	5,300 J	36 J	88 J	78 J	ND
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	41 J	ND
DIBENZOFURAN	ug/Kg	ND	ND	ND	ND	1,500 J	ND	ND	ND	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	59 J	7,300 J	100 J	140 J	16,000	ND	150 J	110 J	ND
FLUORENE	ug/Kg	ND	ND	ND	ND	1,900 J	ND	ND	ND	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	ND	1,300 J	56 J	50 J	ND	ND	50 J	57 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-021	SO-023	SO-023	SO-024	SO-025	SO-026	SO-026	SO-026	SO-028
	Sample:	E2GL1	E2GL4	E2GL5 1.5	E2GL6	E2GM8	E2GP8	E2GP9	E2GQ0	E2GM0
	Interval:	1 - 2	0 - 0.5	- 2.5	0 - 0.5	0 - 0.5	0 - 0.5	1 - 2	1 - 2	0 - 0.5
	Date:	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/2/2005	2/7/2005	2/7/2005	2/7/2005	2/1/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	40 J	5,600 J	63 J	95 J	28,000	ND	ND	ND	ND
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/Kg	68 J	5,900 J	100 J	120 J	15,000 J	ND	110 J	95 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-028	SO-029	SO-030	SO-030	SO-030	SO-031	SO-031	SO-032	SO-032
	Sample:	E2GM1	E2GM3	E2GY1	E2GY2	E2GY3	E2GQ1	E2GQ2	E2GS5	E2GS6
	Interval:	1.5 - 2.5	1.5 - 2.5	0 - 0.5	2 - 3	2 - 3	0 - 0.5	1.5 - 2.5	0 - 0.5	14 - 1.6
	Date:	2/1/2005	2/1/2005	2/17/2005	2/17/2005	2/17/2005	2/7/2005	2/7/2005	2/9/2005	2/9/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	240 J	ND	ND	130 J	210 J	ND	ND	1,900 J	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	15 J	510 J	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	ug/Kg	950	ND	60 J	160 J	480	ND	ND	5,900	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	1,800	70 J	260 J	730	1,000 J	48 J	77 J	13,000	90 J
BENZO(A)PYRENE	ug/Kg	1,700	75 J	290 J	390	1,400	50 J	130 J	18,000	120 J
BENZO(B)FLUORANTHENE	ug/Kg	1,800	90 J	350 J	490	1,000	51 J	110 J	27,000 J	110 J
BENZO(G,H,I)PERYLENE	ug/Kg	820	ND	190 J	630	610	36 J	150 J	14,000	250 J
BENZO(K)FLUORANTHENE	ug/Kg	570	ND	210 J	460	920 J	53 J	120 J	15,000	120 J
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	ND	36 J	ND	ND	ND	ND	ND	120 J
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	380 J	ND	68 J	86 J	190 J	ND	ND	4,900	ND
CHRYSENE	ug/Kg	1,700	79 J	380	710	1200	52 J	120 J	51,000	150 J
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	ND	95 J	350 J	340 J	ND	53 J	12,000	54 J
DIBENZOFURAN	ug/Kg	120 J	ND	ND	46 J	100 J	ND	ND	1,000 J	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	49 J
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	40 J	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	4,500	100 J	880	1,000	3,000	91 J	110 J	42,000	190 J
FLUORENE	ug/Kg	310 J	ND	ND	50 J	140 J	ND	ND	2,200 J	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	1,100	ND	240 J	540	820	38 J	130 J	24,000	96 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-028	SO-029	SO-030	SO-030	SO-030	SO-031	SO-031	SO-032	SO-032
	Sample:	E2GM1	E2GM3	E2GY1	E2GY2	E2GY3	E2GQ1	E2GQ2	E2GS5	E2GS6
	Interval:	1.5 - 2.5	1.5 - 2.5	0 - 0.5	2 - 3	2 - 3	0 - 0.5	1.5 - 2.5	0 - 0.5	14 - 1.6
	Date:	2/1/2005	2/1/2005	2/17/2005	2/17/2005	2/17/2005	2/7/2005	2/7/2005	2/9/2005	2/9/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	390 J	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	3,300	73 J	570	480	1,700	66 J	78 J	16,000	81 J
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/Kg	3,700 J	110 J	750 J	1,600	2,300 J	97 J	150 J	31,000	190 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-033	SO-033	SO-034	SO-034	SO-035	SO-035	SO-036	SO-036	SO-037
	Sample:	E2GS7	E2GS8	E2GS9	E2GT0	E2GQ3	E2GQ4	E2GQ5	E2GQ6	E2GS0
	Interval:	0 - 0.5	2.4 - 2.6	0 - 0.5	2 - 3	0 - 0.5	1 - 2	0 - 0.5	1 - 2	0 - 0.5
	Date:	2/9/2005	2/9/2005	2/9/2005	2/9/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/9/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	86 J	ND	3,000 J	ND	900 J	ND	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	42 J	ND	66 J	ND	19,000	270 J	4,200 J	ND	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	530	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	ug/Kg	65 J	ND	2,700	ND	17,000	490	6,200 J	ND	67 J
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	220 J	ND	1,900	ND	47,000	1,400	11,000	93 J	280 J
BENZO(A)PYRENE	ug/Kg	230 J	55 J	1,400	ND	40,000	1,500	11,000 J	100 J	310 J
BENZO(B)FLUORANTHENE	ug/Kg	240 J	56 J	1,400	ND	51,000	1,700 J	16,000	120 J	300 J
BENZO(G,H,I)PERYLENE	ug/Kg	170 J	130 J	920 J	ND	32,000 J	860	7,600	89 J	280 J
BENZO(K)FLUORANTHENE	ug/Kg	240 J	ND	1400	ND	29,000	1,000	9,700	120 J	340 J
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	1,500 J	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	68 J	99 J	47 J	ND	ND	ND	ND	52 J
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	65 J	ND	1,400	ND	17,000 J	400 J	5,700 J	ND	48 J
CHRYSENE	ug/Kg	340 J	51 J	2,300	ND	63,000	2,000	15,000	97 J	400
DIBENZ(A,H)ANTHRACENE	ug/Kg	97 J	ND	480	ND	13,000	370	4,500 J	42 J	100 J
DIBENZOFURAN	ug/Kg	ND	ND	440	ND	16,000	130 J	3,200 J	ND	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	62 J	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	660	57 J	4,300	ND	150,000	4,900	41,000	150 J	900
FLUORENE	ug/Kg	ND	ND	1,200	ND	17,000	240 J	3,400 J	ND	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	210 J	67 J	890	ND	27,000	830	8,300	77 J	220 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-033	SO-033	SO-034	SO-034	SO-035	SO-035	SO-036	SO-036	SO-037
	Sample:	E2GS7	E2GS8	E2GS9	E2GT0	E2GQ3	E2GQ4	E2GQ5	E2GQ6	E2GS0
	Interval:	0 - 0.5	2.4 - 2.6	0 - 0.5	2 - 3	0 - 0.5	1 - 2	0 - 0.5	1 - 2	0 - 0.5
	Date:	2/9/2005	2/9/2005	2/9/2005	2/9/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/9/2005
NAPHTHALENE	ug/Kg	ND	ND	110 J	ND	5,100 J	84 J	1,300 J	ND	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	400	ND	5,200	ND	200,000	3,500	47,000	100 J	410
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/Kg	520	68 J	3,700	ND	140,000 J	4,600	30,000	130 J	730

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-037	SO-038	SO-038	SO-039	SO-039	SO-040	SO-040	SO-041	SO-041
	Sample:	E2GS1	E2GQ7	E2GQ8	E2GQ9	E2GR0	E2GR1	E2GR2	E2GR3	E2GR4
	Interval:	1 - 2	0 - 0.5	1 - 2	0 - 0.5	0.6 - 1.3	0 - 0.5	1.5 - 2	0 - 0.5	1.4 - 2.4
	Date:	2/9/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	300 J	ND	ND	ND	87 J	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	ND	59 J	ND	ND	ND	ND	ND	2,000	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	100 J	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	170 J	ND
ANTHRACENE	ug/Kg	ND	130 J	ND	ND	53 J	17 J	ND	4,300 J	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	45 J	ND
BENZO(A)ANTHRACENE	ug/Kg	ND	640	ND	290 J	110 J	110 J	ND	17,000	ND
BENZO(A)PYRENE	ug/Kg	ND	1,000	ND	240 J	160 J	130 J	ND	20,000	ND
BENZO(B)FLUORANTHENE	ug/Kg	ND	1,000	ND	250 J	84 J	130 J	ND	18,000	ND
BENZO(G,H,I)PERYLENE	ug/Kg	230 J	820	ND	ND	ND	ND	ND	11,000 J	ND
BENZO(K)FLUORANTHENE	ug/Kg	ND	870	ND	200 J	130 J	100 J	ND	21,000	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	51 J	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	50 J	63 J	ND	ND	50 J	ND	ND	62 J	ND
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	ND	110 J	ND	ND	39 J	ND	ND	2,300 J	ND
CHRYSENE	ug/Kg	ND	960	ND	460 J	130 J	150 J	ND	24,000	ND
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	320 J	ND	ND	43 J	39 J	ND	6,500 J	ND
DIBENZOFURAN	ug/Kg	ND	ND	ND	ND	ND	ND	ND	550	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	140 J	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	43 J	63 J	48 J	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	ND	1,900	41 J	900 J	390	270 J	ND	45,000	40 J
FLUORENE	ug/Kg	ND	49 J	ND	ND	59 J	ND	ND	1,500	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	ND	730	40 J	320 J	89 J	87 J	ND	13,000 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-037	SO-038	SO-038	SO-039	SO-039	SO-040	SO-040	SO-041	SO-041
	Sample:	E2GS1	E2GQ7	E2GQ8	E2GQ9	E2GR0	E2GR1	E2GR2	E2GR3	E2GR4
	Interval:	1 - 2	0 - 0.5	1 - 2	0 - 0.5	0.6 - 1.3	0 - 0.5	1.5 - 2	0 - 0.5	1.4 - 2.4
	Date:	2/9/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	240 J	ND	ND	190 J	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	ND	1,000	ND	880 J	330 J	100 J	ND	20,000	ND
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	43 J	ND
PYRENE	ug/Kg	ND	1,800	54 J	930 J	280 J	230 J	ND	45,000	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-041	SO-042	SO-042	SO-043	SO-043	SO-045	SO-050	SO-050	SO-051
	Sample:	E2GR5	E2GR6	E2GR7	E2GS2	E2GS3	E2GN2	E2GY4	E2GY5	E2GY6
	Interval:	1.4 - 2.4	0 - 0.5	1.5 - 2.5	0 - 0.5	2.8 - 3	1.5 - 2.5	0 - 0.5	1 - 1.8	0 - 0.5
	Date:	2/8/2005	2/8/2005	2/8/2005	2/9/2005	2/9/2005	2/2/2005	2/17/2005	2/17/2005	2/17/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	51 J	ND	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	ND	ND	ND	ND	ND	ND	550	ND	160 J
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	63 J	ND	ND
ACETOPHENONE	ug/Kg	ND	52 J	46 J	ND	62 J	ND	120 J	ND	49 J
ANTHRACENE	ug/Kg	ND	91 J	ND	ND	ND	ND	1,300	ND	240 J
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	ND	470	ND	98 J	ND	77 J	5,400	52 J	780
BENZO(A)PYRENE	ug/Kg	ND	550	ND	88 J	ND	98 J	5,100	48 J	750
BENZO(B)FLUORANTHENE	ug/Kg	ND	400	ND	93 J	ND	110 J	6,600	60 J	730
BENZO(G,H,I)PERYLENE	ug/Kg	ND	390	ND	76 J	ND	ND	2,600 J	100 J	430 J
BENZO(K)FLUORANTHENE	ug/Kg	ND	640 J	ND	110 J	ND	53 J	5,100	45 J	590
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	38 J	64 J	ND	39 J	50 J	ND	230 J	45 J	51 J
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	41 J	ND
CARBAZOLE	ug/Kg	ND	63 J	ND	ND	ND	ND	1,200	ND	340 J
CHRYSENE	ug/Kg	ND	620	ND	130 J	ND	58 J	5,900	71 J	1100
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	150 J	ND	44 J	ND	ND	1,800	ND	330 J
DIBENZOFURAN	ug/Kg	ND	ND	ND	ND	ND	ND	280 J	ND	92 J
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	290 J	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	390 J	ND	95 J
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	ND	1,300	ND	210 J	ND	49 J	16,000	100 J	2,300
FLUORENE	ug/Kg	ND	ND	ND	ND	ND	ND	570 J	ND	180 J
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	230 J	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	ND	360 J	ND	77 J	ND	86 J	3,500	89 J	610

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-041	SO-042	SO-042	SO-043	SO-043	SO-045	SO-050	SO-050	SO-051
	Sample:	E2GR5	E2GR6	E2GR7	E2GS2	E2GS3	E2GN2	E2GY4	E2GY5	E2GY6
	Interval:	1.4 - 2.4	0 - 0.5	1.5 - 2.5	0 - 0.5	2.8 - 3	1.5 - 2.5	0 - 0.5	1 - 1.8	0 - 0.5
	Date:	2/8/2005	2/8/2005	2/8/2005	2/9/2005	2/9/2005	2/2/2005	2/17/2005	2/17/2005	2/17/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	62 J
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	ND	510	ND	130 J	ND	ND	9,300	78 J	2,000
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/Kg	ND	1,000	ND	220 J	40 J	75 J	14,000	130 J	2,400

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-051	SO-052	SO-052	SO-053	SO-053	SO-053	SO-054	SO-062	SO-062
	Sample:	E2GY7	E2GY8	E2GY9	E2GZ0	E2GZ1	E2GZ2	E2GZ3	E2HD6	E2HD7
	Interval:	1.4 - 3	0 - 0.5	0.5 - 1.3	0 - 0.5	2.3 - 3.8	2.3 - 3.8	0 - 0.5	0.8 - 2.3	4 - 4.5
	Date:	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	3/15/2005	3/15/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
ACENAPHTHENE	ug/Kg	ND	100 J	ND	ND	ND	ND	280 J	R	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
ACETOPHENONE	ug/Kg	ND	49 J	ND	61 J	ND	ND	130 J	R	ND
ANTHRACENE	ug/Kg	ND	220 J	ND	51 J	ND	ND	440 J	R	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
BENZO(A)ANTHRACENE	ug/Kg	ND	710	ND	190 J	ND	25 J	1,500	R	ND
BENZO(A)PYRENE	ug/Kg	ND	540 J	ND	230 J	ND	27 J	1,600	R	ND
BENZO(B)FLUORANTHENE	ug/Kg	ND	610	ND	340 J	51 J	41 J	1,400	R	ND
BENZO(G,H,I)PERYLENE	ug/Kg	ND	550	ND	120 J	ND	ND	650 J	R	ND
BENZO(K)FLUORANTHENE	ug/Kg	ND	560	ND	200 J	ND	38 J	1,500	R	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	83 J	50 J	ND	ND	ND	83 J	R	ND
CAPROLACTAM	ug/Kg	ND	55 J	ND	ND	ND	ND	ND	R	ND
CARBAZOLE	ug/Kg	ND	160 J	ND	ND	ND	ND	470	R	ND
CHRYSENE	ug/Kg	ND	820	ND	230 J	42 J	40 J	2,400	4,100 J	ND
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	260 J	ND	96 J	ND	ND	460	R	ND
DIBENZOFURAN	ug/Kg	ND	70 J	ND	ND	ND	ND	140 J	R	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
DI-N-BUTYL PHTHALATE	ug/Kg	62 J	98 J	87 J	ND	ND	ND	ND	R	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
FLUORANTHENE	ug/Kg	ND	2,000	ND	440 J	52 J	57 J	3,400	R	ND
FLUORENE	ug/Kg	ND	100 J	ND	ND	ND	ND	280 J	R	ND
HEXACHLOROBENZENE	ug/Kg	ND	59 J	ND	ND	ND	ND	ND	R	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	ND	440	ND	180 J	ND	ND	1,000	R	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-051	SO-052	SO-052	SO-053	SO-053	SO-053	SO-054	SO-062	SO-062
	Sample:	E2GY7	E2GY8	E2GY9	E2GZ0	E2GZ1	E2GZ2	E2GZ3	E2HD6	E2HD7
	Interval:	1.4 - 3	0 - 0.5	0.5 - 1.3	0 - 0.5	2.3 - 3.8	2.3 - 3.8	0 - 0.5	0.8 - 2.3	4 - 4.5
	Date:	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	3/15/2005	3/15/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	78 J	R	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
PHENANTHRENE	ug/Kg	ND	1,300	ND	290 J	ND	ND	3,000	R	ND
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	R	ND
PYRENE	ug/Kg	ND	2,000	ND	640	59 J	64 J	3,200	2,100 J	420 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-064	SO-064	SO-067	SO-067	SO-070	SO-071	SO-074	SO-074	SO-081
	Sample:	E2HD9	E2HE0	E2HE3	E2HE4	E2HF0 3.3	E2HF2	E2HF6 0.4	E2HF7 2.1	E2HG2
	Interval:	0 - 1	4 - 6.6	6 - 6.5	6 - 6.5	- 4.5	4 - 5	- 0.8	- 2.4	4 - 4.9
	Date:	3/16/2005	3/16/2005	3/17/2005	3/17/2005	3/22/2005	3/22/2005	3/24/2005	3/24/2005	3/30/2005
Semivolatile Organical Compounds										
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	230 J	ND
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	990 J	5,600	ND	ND	ND	ND	2,400 J	ND	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND	52 J	ND	ND	ND	ND
ANTHRACENE	ug/Kg	1,600 J	2,200	ND	ND	ND	ND	10,000 J	83 J	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	7,100	6,500	100 J	100 J	110 J	34 J	14,000 J	120 J	ND
BENZO(A)PYRENE	ug/Kg	5,300	3,300	120 J	140 J	86 J	ND	11,000 J	82 J	ND
BENZO(B)FLUORANTHENE	ug/Kg	6,100	4,600	170 J	100 J	77 J	ND	7,400 J	ND	ND
BENZO(G,H,I)PERYLENE	ug/Kg	3,700	2,000	120 J	93 J	59 J	ND	5,200 J	80 J	ND
BENZO(K)FLUORANTHENE	ug/Kg	5,500	3,400	92 J	77 J	87 J	ND	10,000 J	ND	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	59 J	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CAPROLACTAM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBAZOLE	ug/Kg	1,100 J	ND	ND	ND	ND	ND	3,000 J	66 J	ND
CHRYSENE	ug/Kg	7,800	8,200	160 J	130 J	140 J	38 J	15,000 J	170 J	1,100 J
DIBENZ(A,H)ANTHRACENE	ug/Kg	1,700 J	900 J	ND	ND	ND	ND	3,700 J	ND	ND
DIBENZOFURAN	ug/Kg	680 J	740 J	ND	ND	ND	ND	2,300 J	140 J	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	17,000	27,000	160 J	140 J	170 J	62 J	42,000	260 J	1,500 J
FLUORENE	ug/Kg	1,300 J	6,500	ND	ND	ND	ND	4,400 J	ND	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	2800	1,600 J	96 J	70 J	51 J	ND	6,900 J	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-064	SO-064	SO-067	SO-067	SO-070	SO-071	SO-074	SO-074	SO-081
	Sample:	E2HD9	E2HE0	E2HE3	E2HE4	E2HF0 3.3	E2HF2	E2HF6 0.4	E2HF7 2.1	E2HG2
	Interval:	0 - 1	4 - 6.6	6 - 6.5	6 - 6.5	- 4.5	4 - 5	- 0.8	- 2.4	4 - 4.9
	Date:	3/16/2005	3/16/2005	3/17/2005	3/17/2005	3/22/2005	3/22/2005	3/24/2005	3/24/2005	3/30/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	73 J	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	250 J	ND
PHENANTHRENE	ug/Kg	11,000	ND	88 J	66 J	120 J	38 J	35,000	1,300	1,400 J
PHENOL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/Kg	16,000	25,000	180 J	170 J	250 J	91 J	33,000 J	270 J	1,500 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-081	SO-081	SO-081	SO-081
	Sample:	E2HG3	E2HG4	E2HG7	E2HG8
	Interval:	8 - 8.7	8 - 8.7	25 - 26.9	25 - 26.9
	Date:	3/30/2005	3/30/2005	3/31/2005	3/31/2005
Semivolatile Organical Compounds					
2,4-DIMETHYLPHENOL	ug/Kg	ND	ND	ND	ND
2-METHYLNAPHTHALENE	ug/Kg	ND	ND	130 J	210 J
3,3'-DICHLOROBENZIDINE	ug/Kg	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	ug/Kg	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/Kg	ND	ND	ND	ND
ACENAPHTHENE	ug/Kg	ND	ND	ND	ND
ACENAPHTHYLENE	ug/Kg	ND	ND	ND	ND
ACETOPHENONE	ug/Kg	ND	ND	ND	ND
ANTHRACENE	ug/Kg	ND	ND	ND	ND
BENZALDEHYDE	ug/Kg	ND	ND	ND	ND
BENZO(A)ANTHRACENE	ug/Kg	ND	ND	ND	ND
BENZO(A)PYRENE	ug/Kg	ND	ND	ND	ND
BENZO(B)FLUORANTHENE	ug/Kg	ND	ND	ND	ND
BENZO(G,H,I)PERYLENE	ug/Kg	ND	ND	ND	ND
BENZO(K)FLUORANTHENE	ug/Kg	ND	ND	ND	ND
BENZYL BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND
BIPHENYL (DIPHENYL)	ug/Kg	ND	ND	60 J	86 J
BIS(2-ETHYLHEXYL) PHTHALATE	ug/Kg	ND	ND	ND	ND
CAPROLACTAM	ug/Kg	ND	ND	ND	ND
CARBAZOLE	ug/Kg	ND	ND	ND	ND
CHRYSENE	ug/Kg	ND	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ug/Kg	ND	ND	ND	ND
DIBENZOFURAN	ug/Kg	ND	ND	ND	ND
DIETHYL PHTHALATE	ug/Kg	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/Kg	ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ug/Kg	ND	ND	ND	ND
FLUORANTHENE	ug/Kg	ND	ND	ND	ND
FLUORENE	ug/Kg	ND	ND	ND	ND
HEXACHLOROBENZENE	ug/Kg	ND	ND	ND	ND
INDENO(1,2,3-C,D)PYRENE	ug/Kg	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Semivolatile Organic Compounds

	Station:	SO-081	SO-081	SO-081	SO-081
	Sample:	E2HG3	E2HG4	E2HG7	E2HG8
	Interval:	8 - 8.7	8 - 8.7	25 - 26.9	25 - 26.9
	Date:	3/30/2005	3/30/2005	3/31/2005	3/31/2005
NAPHTHALENE	ug/Kg	ND	ND	ND	ND
N-NITROSODI-N-PROPYLAMINE	ug/Kg	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	ug/Kg	ND	ND	ND	ND
PHENANTHRENE	ug/Kg	1,900 J	5,200 J	610	830
PHENOL	ug/Kg	ND	ND	ND	ND
PYRENE	ug/Kg	1,500 J	4,400 J	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Volatile Organic Compounds

	Station:	SO-001	SO-001	SO-002	SO-002	SO-003	SO-003	SO-005	SO-007	SO-007
	Sample:	E2GM4	E2GM5	E2GM6 0	E2GM7	E2GK0	E2GK1	E2GN7	E2GP0	E2GP1
	Interval:	0 - 0.5	0.7 - 1.6	- 0.5	0.5 - 1.3	0 - 0.5	1.5 - 2	2 - 2.5	0 - 0.5	0.7 - 1.4
	Date:	2/2/2005	2/2/2005	2/2/2005	2/2/2005	1/31/2005	1/31/2005	2/2/2005	2/7/2005	2/7/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	2 J	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	36	29	13 J	20	ND	ND	15 J	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	2 J
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	28	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	4 J	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	4 J	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	ND	5 J	4 J	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	20	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	73	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-008	SO-008	SO-009	SO-010	SO-010	SO-011	SO-012	SO-012	SO-013
	Sample:	E2GK2	E2GK3	E2GK5	E2GK6	E2GK7	E2GP3	E2GP4	E2GP5	E2GP6
	Interval:	0 - 0.5	1.5 - 2.5	1.5 - 2.5	0 - 0.5	1.5 - 2.5	1.2 - 1.9	0 - 0.5	1.6 - 2.6	0 - 0.5
	Date:	1/31/2005	1/31/2005	1/31/2005	1/31/2005	1/31/2005	2/7/2005	2/7/2005	2/7/2005	2/7/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND	3 J	2 J	3 J	2 J
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	7 J
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	44
METHYLENE CHLORIDE	ug/Kg	4 J	3 J	3 J	3 J	4 J	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	36	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	9 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-013	SO-014	SO-014	SO-014	SO-015	SO-015	SO-016	SO-016	SO-017
	Sample:	E2GP7	E2GX0	E2GX1	E2GX2	E2GR8	E2GR9	E2GX3	E2GX4	E2GX5
	Interval:	1.4 - 1.9	0 - 0.5	1.5 - 2	1.5 - 2	0.3 - 0.8	0.8 - 1.2	0 - 0.5	1.5 - 2	0 - 0.5
	Date:	2/7/2005	2/17/2005	2/17/2005	2/17/2005	2/9/2005	2/9/2005	2/17/2005	2/17/2005	2/17/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	37	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	29	ND	2 J	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	6 J	3 J	6 J	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	3 J	2 J	2 J	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	3 J	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	2 J	ND	3 J	ND	ND	ND	6 J	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	6 J	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	4 J	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	3 J	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	8 J	14	ND	ND	6 J	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	3 J	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	140	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	10 J	15	ND	35	2 J
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	4 J	3 J	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Volatile Organic Compounds

	Station:	SO-017	SO-018	SO-019	SO-019	SO-020	SO-020	SO-023	SO-024	SO-024
	Sample:	E2GX6	E2GX7	E2GX9	E2GY0	E2GK8	E2GK9	E2GL5 1.5	E2GL6	0 E2GL7 1.5
	Interval:	1.4 - 2	0 - 0.5	0 - 0.5	1.5 - 2.5	0 - 0.5	0.5 - 1.5	- 2.5	- 0.5	- 2.5
	Date:	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	10 J	54 J	23 J
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	12	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	440	3 J	3 J	6 J	160	630	ND	11 J	ND
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		SO-026	SO-026	SO-026	SO-027	SO-027	SO-028	SO-028	SO-029	SO-029
Sample:		E2GP8	E2GP9	E2GQ0	E2GL8	E2GL9	E2GM0	E2GM1	E2GM2	E2GM3
Interval:		0 - 0.5	1 - 2	1 - 2	0 - 0.5	1 - 2	0 - 0.5	1.5 - 2.5	0 - 0.5	1.5 - 2.5
Date:		2/7/2005	2/7/2005	2/7/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	3 J
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	2 J	2 J	2 J	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	4 J	11 J	5 J	7 J	6 J	3 J
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	15	160	110	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Volatile Organic Compounds

	Station:	SO-030	SO-031	SO-031	SO-033	SO-033	SO-035	SO-035	SO-036	SO-038
	Sample:	E2GY1	E2GQ1	E2GQ2	E2GS7	E2GS8	E2GQ3	E2GQ4	E2GQ5	E2GQ7
	Interval:	0 - 0.5	0 - 0.5	1.5 - 2.5	0 - 0.5	2.4 - 2.6	0 - 0.5	1 - 2	0 - 0.5	0 - 0.5
	Date:	2/17/2005	2/7/2005	2/7/2005	2/9/2005	2/9/2005	2/8/2005	2/8/2005	2/8/2005	2/8/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/Kg	15	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	3 J	2 J	ND	ND	3 J	4 J	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	6 J	ND	ND	ND	ND	2 J	ND	ND	2 J
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	68	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	ND	ND	ND	40	490	ND	ND	ND	ND
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-040	SO-043	SO-045	SO-045	SO-046	SO-047	SO-048	SO-050	SO-050
	Sample:	E2GR1	E2GS3	E2GN0	E2GN2	E2GT4	E2GT8	E2GW5	E2GY4	E2GY5
	Interval:	0 - 0.5	2.8 - 3	0 - 0.5	1.5 - 2.5	1.2 - 2.2	1 - 2	1.7 - 2.7	0 - 0.5	1 - 1.8
	Date:	2/8/2005	2/9/2005	2/2/2005	2/2/2005	2/10/2005	2/10/2005	2/11/2005	2/17/2005	2/17/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	6 J	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	9 J	9 J	8 J	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	8 J	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	5 J	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	6 J	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	68	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	10 J	35	ND	ND
TRICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	12	9,500 J	5,100	38	18
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-051	SO-052	SO-052	SO-053	SO-053	SO-054	SO-055	SO-056	SO-056
	Sample:	E2GY7	E2GY8	E2GY9	E2GZ1	E2GZ2	E2GZ4	E2GZ8	E2HA0	E2HA1
	Interval:	1.4 - 3	0 - 0.5	0.5 - 1.3	2.3 - 3.8	2.3 - 3.8	0.6 - 2.7	4 - 5	1.7 - 2	1.7 - 2
	Date:	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/17/2005	2/22/2005	2/22/2005	2/22/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	14 J	13 J
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	7 J	7 J
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	5 J	4 J	3 J	4 J	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	36 J	51 J
TRICHLOROETHYLENE	ug/Kg	ND	32	160	65 J	37	ND	38 J	28,000	33,000
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Volatile Organic Compounds

	Station:	SO-057	SO-057	SO-058	SO-062	SO-062	SO-062	SO-064	SO-064
	Sample:	05CK14-12	E2HA5	E2HB0	E2HC7	E2HC8	E2HC9	E2HD1	E2HD2
	Interval:	26.5 - 30.5	2 - 3	1.1 - 1.7	0.8 - 2.3	22 - 24.6	4 - 5.5	4 - 6.6	16 - 17.2
	Date:	2/24/2005	2/23/2005	3/1/2005	3/15/2005	3/15/2005	3/15/2005	3/16/2005	3/16/2005
Volatile Organical Compounds									
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	16,000	ND	330 J	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	530 J	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	1,300 J	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	23	18
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	2,300	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	460 J	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg		ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	410 J	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg		ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	9 J	ND	330 J	380 J	310 J	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	460 J	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	ND	21	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/Kg	1,600,000,000	12 J	11	340 J	4,500	ND	ND	ND
VINYL CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	740 J	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-067	SO-067	SO-067	SO-069	SO-069	SO-069	SO-070	SO-070	SO-070
	Sample:	E2HD3	E2HD4	E2HD5	E2HE5	E2HE6	E2HE7	E2HE9	E2HF0 3.3	E2HF1 9.5
	Interval:	4.5 - 5.5	6 - 6.5	6 - 6.5	0 - 1.7	8 - 10.4	8 - 10.4	28 - 28.9	- 4.5	- 10.5
	Date:	3/17/2005	3/17/2005	3/17/2005	3/21/2005	3/21/2005	3/21/2005	3/22/2005	3/22/2005	3/22/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	5 J	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	4 J	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	4 J	10 J	8 J	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	4 J	ND	3 J	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	2 J	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	4 J	3 J	4 J	ND	ND	ND	ND	20	ND
TRICHLOROETHYLENE	ug/Kg	1,200	110	120	8 J	ND	ND	ND	100,000	53
VINYL CHLORIDE	ug/Kg	ND	5 J	4 J	ND	17	4 J	15	ND	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-071	SO-071	SO-071	SO-074	SO-074	SO-079	SO-079	SO-079	SO-081
	Sample:	E2HF3 9.3	E2HF4	E2HF5	E2HF7 2.1	E2HF8	E2HF9 1.4	E2HG0	E2HG1 24	E2HG2
	Interval:	- 10.3	25 - 26.1	25 - 26.1	- 2.4	22 - 22.9	- 2.7	2.7 - 3.6	- 24.9	4 - 4.9
	Date:	3/22/2005	3/22/2005	3/22/2005	3/24/2005	3/24/2005	3/29/2005	3/29/2005	3/29/2005	3/30/2005
Volatile Organical Compounds										
1,1,1-TRICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	90	23	ND	5 J	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/Kg	ND	ND	ND	ND	ND	R	R	R	ND
ACETONE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	3 J	2 J	ND	29 J	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	ND	ND	ND	ND	ND	R	R	R	ND
METHYLCYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	ND	4 J	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/Kg	ND	4 J	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	ND	140	39	15 J	45 J	ND	ND	6 J	ND
TRICHLOROETHYLENE	ug/Kg	ND	34,000	60,000	310 J	260 J	34	6 J	5 J	1500
VINYL CHLORIDE	ug/Kg	ND	ND	71 J	ND	190	ND	ND	150	ND
XYLENES, TOTAL	ug/Kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Volatile Organic Compounds

	Station:	SO-081	SO-081	SO-081	SO-081	SO-082
	Sample:	E2HG3	E2HG4	E2HG7 25	E2HG8	E2HG5
	Interval:	8 - 8.7	8 - 8.7	- 26.9	25 - 26.9	4 - 5
	Date:	3/30/2005	3/30/2005	3/31/2005	3/31/2005	3/30/2005
Volatile Organical Compounds						
1,1,1-TRICHLOROETHANE	ug/Kg	14 J	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/Kg	37 J	ND	ND	ND	ND
1,1-DICHLOROETHYLENE	ug/Kg	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/Kg	ND	ND	ND	ND	ND
2-BUTANONE	ug/Kg	6 J	ND	ND	ND	ND
2-HEXANONE	ug/Kg	R	ND	ND	ND	3 J
ACETONE	ug/Kg	ND	ND	ND	ND	ND
BENZENE	ug/Kg	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/Kg	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ug/Kg	ND	ND	ND	ND	ND
CHLOROETHANE	ug/Kg	27 J	ND	ND	ND	ND
CHLOROFORM	ug/Kg	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	ug/Kg	ND	ND	ND	ND	ND
CYCLOHEXANE	ug/Kg	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/Kg	10 J	ND	450 J	530 J	ND
ISOPROPYLBENZENE (CUMENE)	ug/Kg	2 J	ND	ND	ND	ND
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/Kg	R	ND	ND	ND	12 J
METHYLCYCLOHEXANE	ug/Kg	21 J	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/Kg	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/Kg	ND	ND	1900	1,900	ND
TOLUENE	ug/Kg	8 J	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/Kg	5 J	ND	250 J	ND	ND
TRICHLOROETHYLENE	ug/Kg	62 J	1,000 J	1,300,000	1,200,000	ND
VINYL CHLORIDE	ug/Kg	6 J	ND	ND	ND	ND
XYLENES, TOTAL	ug/Kg	30 J	ND	2,100	2,300	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Soil Oxydent Demand

	Station:	SO-062	SO-062	SO-062	SO-067	SO-067	SO-067	SO-069	SO-069
	Sample:	05CK14-19	05CK14-20	05CK14-21	05CK14-40	05CK14-41	05CK14-42	05CK14-52	05CK14-56
	Interval:	0.8 - 2.3	4 - 5.5	22 - 24.6	4.5 - 5.5	6 - 6.5	6 - 6.5	0 - 1.7	8 - 10.4
	Date:	3/15/2005	3/15/2005	3/15/2005	3/17/2005	3/17/2005	3/17/2005	3/21/2005	3/21/2005
Soil Oxydent Demand									
SOIL OXYDENT DEMAND	g/Kg	0.195	0.131	0.0848	0.19	1.4	1.3	0.047	0.13

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Soil Oxydent Demand

	Station:	SO-069	SO-069	SO-070	SO-070	SO-070	SO-071	SO-071	SO-071
	Sample:	05CK14-57	05CK14-58	05CK14-64	05CK14-65	05CK14-66	05CK14-67	05CK14-68	05CK14-69
	Interval:	8 - 10.4	24 - 25.5	28 - 28.9	3.3 - 4.5	9.5 - 10.5	4 - 5	9.3 - 10.3	25 - 26.1
	Date:	3/21/2005	3/21/2005	3/22/2005	3/22/2005	3/22/2005	3/22/2005	3/22/2005	3/22/2005
Soil Oxydent Demand									
SOIL OXYDENT DEMAND	g/Kg	0.07	0.6	0.023	0.064	0.013	0.091	0.061	0.031

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Soil Oxydent Demand

	Station:	SO-071	SO-079	SO-079	SO-081	SO-081	SO-081	SO-081	SO-081
	Sample:	05CK14-70	05CK28-02	05CK28-06	05CK28-15	05CK28-16	05CK28-17	05CK28-26	05CK28-27
	Interval:	25 - 26.1	1.4 - 2.7	24 - 24.9	4 - 4.9	8 - 8.7	8 - 8.7	25 - 26.9	25 - 26.9
	Date:	3/22/2005	3/29/2005	3/29/2005	3/30/2005	3/30/2005	3/30/2005	3/31/2005	3/31/2005
Soil Oxydent Demand									
SOIL OXYDENT DEMAND	g/Kg	0.032	0.0065	0.011	0.0092	0.16	0.14	0.062	0.035

APPENDIX C
OMC Plant 2—Soil Samples
Soil Oxydent Demand

	Station:	SO-082	SO-082	SO-082
	Sample:	05CK28-19	05CK28-20	05CK28-25
	Interval:	4 - 5	8 - 8.7	17.3 - 18.7
	Date:	3/30/2005	3/30/2005	3/31/2005
Soil Oxydent Demand				
SOIL OXYDENT DEMAND	g/Kg	0.006	0.01	0.0054

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-061	SO-061	SO-061	SO-062	SO-063	SO-063	SO-063	SO-065
	Sample:	05CK14-13	05CK14-17	05CK14-46	05CK14-18	05CK14-22	05CK14-23	05CK14-24	05CK14-31
	Interval:	4 - 6	24.5 - 26.5	1.3 - 2.3	20.5 - 22	20.5 - 22	6.5 - 7.5	1.5 - 2.5	0.9 - 1.9
	Date:	3/14/2005	3/15/2005	3/14/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/16/2005
Geotechnical									
BULK DENSITY OF SOILS	g/cc	1.61	1.84	1.3	1.35	1.34	1.32	1.44	1.3
SIEVE NO. 10, PERCENT PASSING	percent	82.92	78.61	94.39	95.28	100	98.13	84.02	98.98
SIEVE NO. 200, PERCENT PASSING	percent	2.73	7.52	2.17	14.02	4.42	1	1.88	3.44
SIEVE NO. 4, PERCENT PASSING	percent	94.85	97.45	97.07	96.88	100	99.62	90.01	99.97
SIEVE NO. 40, PERCENT PASSING	percent	61.56	31.1	77.97	94.25	99.75	91.84	68.78	90.72
SIEVE NO. 80, PERCENT PASSING	percent	5.64	18.14	5.17	89.69	93.15	5.18	19.67	36.56
SIEVE, NO. 100, PERCENT PASSING	percent	4.6	15.9	3.9	82.95	60.35	2.72	14.86	27.89
SIEVE, NO. 20, PERCENT PASSING	percent	75.57	47.45	91.83	94.81	99.88	96.8	76.98	94.59
SIEVE, NO. 60, PERCENT PASSING	percent	17.57	22.71	20.88	92.67	99.48	31.91	38.34	67.49
VOID RATIO OF SOILS	percent	52.6	20.6	55.8	41	33.6	42.9	44.3	46.5

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Geotechnical

	Station:	SO-065	SO-065	SO-066	SO-066	SO-066	SO-067	SO-067	SO-067
	Sample:	05CK14-32	05CK14-33	05CK14-36	05CK14-37	05CK14-39	05CK14-43	05CK14-44	05CK14-45
	Interval:	6.4 - 7.4	20 - 21	1 - 2	5 - 6.5	29 - 30	5 - 6	6.5 - 7.5	28 - 28.8
	Date:	3/16/2005	3/16/2005	3/16/2005	3/16/2005	3/16/2005	3/17/2005	3/17/2005	3/17/2005
Geotechnical									
BULK DENSITY OF SOILS	g/cc	1.68	1.32	1.62	1.38	1.19	1.51	1.5	1.27
SIEVE NO. 10, PERCENT PASSING	percent	35.4	99.93	84.25	99.77	85.94	88.72	61.2	85.6
SIEVE NO. 200, PERCENT PASSING	percent	1.22	4.22	2.33	1.13	18.2	3.96	1.24	12.31
SIEVE NO. 4, PERCENT PASSING	percent	59.28	100	95.68	100	99.62	98.25	87.85	97.81
SIEVE NO. 40, PERCENT PASSING	percent	10.42	99.53	59.16	98.52	44.01	60.85	31.76	67.83
SIEVE NO. 80, PERCENT PASSING	percent	2.5	84.71	9.79	9.54	31.22	10.43	3.35	63.42
SIEVE, NO. 100, PERCENT PASSING	percent	2	44.28	6.34	4.45	29.37	8.54	2.19	61.58
SIEVE, NO. 20, PERCENT PASSING	percent	19.23	99.71	71.6	99.53	59.95	77.27	40.06	73.71
SIEVE, NO. 60, PERCENT PASSING	percent	5.06	98.8	31.02	55.45	35.25	21.72	15.37	65.09
VOID RATIO OF SOILS	percent	69.7	35.1	68.8	41.8	12.1	73	58.3	50.2

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Geotechnical

	Station:	SO-068	SO-068	SO-069	SO-069	SO-069	SO-070	SO-070	SO-070
	Sample:	05CK14-47	05CK14-51	05CK14-53	05CK14-54	05CK14-55	05CK14-59	05CK14-60	05CK14-61
	Interval:	1 - 2.5	5.5 - 6.5	26.5 - 27.5	4 - 5.5	5.5 - 6.5	28.9 - 29.9	4.5 - 5.6	8 - 9.5
	Date:	3/21/2005	3/21/2005	3/21/2005	3/21/2005	3/21/2005	3/22/2005	3/22/2005	3/22/2005
Geotechnical									
BULK DENSITY OF SOILS	g/cc	1.4	1.29	1.79	1.39	1.49	1.32	1.46	1.63
SIEVE NO. 10, PERCENT PASSING	percent								
SIEVE NO. 200, PERCENT PASSING	percent								
SIEVE NO. 4, PERCENT PASSING	percent	96.38	99.19		86.39	98.97		96.37	94.46
SIEVE NO. 40, PERCENT PASSING	percent								
SIEVE NO. 80, PERCENT PASSING	percent								
SIEVE, NO. 100, PERCENT PASSING	percent			9.87					
SIEVE, NO. 20, PERCENT PASSING	percent						99.6		
SIEVE, NO. 60, PERCENT PASSING	percent								
VOID RATIO OF SOILS	percent	75.1	55.8	49	90.6	47.9	32.3	63.4	60.5

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Geotechnical

	Station:	SO-071	SO-071	SO-071	SO-072	SO-072	SO-072	SO-074
	Sample:	05CK14-62	05CK14-63	05CK14-71	05CK14-75	05CK14-76	05CK14-77	05CK14-81
	Interval:	2.4 - 3.4	8.3 - 9.3	24 - 25	1 - 2	5 - 6	24.4 - 25.4	0.5 - 1.5
	Date:	3/22/2005	3/22/2005	3/22/2005	3/23/2005	3/23/2005	3/23/2005	3/24/2005
Geotechnical								
BULK DENSITY OF SOILS	g/cc	1.3	1.45	1.46	1.4	1.44	1.31	1.33
SIEVE NO. 10, PERCENT PASSING	percent							
SIEVE NO. 200, PERCENT PASSING	percent							
SIEVE NO. 4, PERCENT PASSING	percent	99.29	97.66	99.31	95.09	98.9		64.03
SIEVE NO. 40, PERCENT PASSING	percent							
SIEVE NO. 80, PERCENT PASSING	percent							
SIEVE, NO. 100, PERCENT PASSING	percent							
SIEVE, NO. 20, PERCENT PASSING	percent						99.9	
SIEVE, NO. 60, PERCENT PASSING	percent							
VOID RATIO OF SOILS	percent	96.2	30.8	22.7	46.6	34.2	39.8	81.5

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-074	SO-074	SO-075	SO-075	SO-075	SO-077	SO-077
	Sample:	05CK14-82	05CK14-83	05CK14-84	05CK14-85	05CK14-89	05CK14-90	05CK14-93
	Interval:	2.5 - 3.5	24.1 - 25.1	2.4 - 3.3	5.9 - 6.9	24 - 24.8	1.6 - 2.6	24.3 - 25.3
	Date:	3/24/2005	3/24/2005	3/24/2005	3/24/2005	3/24/2005	3/28/2005	3/28/2005
Geotechnical								
BULK DENSITY OF SOILS	g/cc	1.44	1.36	1.2	1.39	1.54	1.59	1.45
SIEVE NO. 10, PERCENT PASSING	percent							99.84
SIEVE NO. 200, PERCENT PASSING	percent							8.96
SIEVE NO. 4, PERCENT PASSING	percent	99.04		83.06	96.36	98.11	95.85	100
SIEVE NO. 40, PERCENT PASSING	percent							97.2
SIEVE NO. 80, PERCENT PASSING	percent							91.61
SIEVE, NO. 100, PERCENT PASSING	percent							85.75
SIEVE, NO. 20, PERCENT PASSING	percent		99.94					98.46
SIEVE, NO. 60, PERCENT PASSING	percent							95.08
VOID RATIO OF SOILS	percent	56.6	44.1	78.2	41.7	48.9	88.7	37.3

	Station:	SO-077	SO-078	SO-078	SO-079	SO-079	SO-079	SO-080	SO-080
	Sample:	05CK14-95	05CK14-97	05CK14-98	05CK28-03	05CK28-05	05CK28-07	05CK28-08	05CK28-11
	Interval:	8.5 - 10	1.5 - 2.5	16.1 - 17.1	1.6 - 2.6	4.5 - 6	20.6 - 21.6	1 - 2.5	29 - 30.4
	Date:	3/28/2005	3/29/2005	3/29/2005	3/29/2005	3/29/2005	3/29/2005	3/30/2005	3/30/2005
Geotechnical									
BULK DENSITY OF SOILS	g/cc	1.36	1.48	1.39	1.36	1.89	1.61	1.45	1.23
SIEVE NO. 10, PERCENT PASSING	percent	95.37	91.16	99.05	99.02	95.21	87.99	94.49	100
SIEVE NO. 200, PERCENT PASSING	percent	0.96	3.73	3.84	0.66	0.9	1.6	1.85	5.73
SIEVE NO. 4, PERCENT PASSING	percent	96.53	97.03	99.83	99.54	97.15	95.6	96.11	100
SIEVE NO. 40, PERCENT PASSING	percent	89.97	12.34	98.44	91.56	84.86	63.51	87.21	99.97
SIEVE NO. 80, PERCENT PASSING	percent	5.6	3.73	91.12	5.12	4.62	12.33	17.01	99.35
SIEVE, NO. 100, PERCENT PASSING	percent	2.68	3.73	74.39	2.81	2.99	6.47	8.75	97.3
SIEVE, NO. 20, PERCENT PASSING	percent	94.27	77.7	98.66	98.11	93.21	70.58	91.94	100
SIEVE, NO. 60, PERCENT PASSING	percent	37.01	3.85	97.88	29.83	25.32	44.88	60.01	99.83
VOID RATIO OF SOILS	percent	45.5	41.2	43.7	63.3	47.4	60.9	85.6	47.3

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-080	SO-081	SO-081	SO-081	SO-082	SO-082	SO-082
	Sample:	05CK28-13	05CK28-14	05CK28-18	05CK28-23	05CK28-21	05CK28-22	05CK28-24
	Interval:	8 - 9.7	0.3 - 1.4	9.9 - 10.9	24 - 25	5 - 6	8.7 - 9.7	16 - 17.3
	Date:	3/30/2005	3/30/2005	3/30/2005	3/31/2005	3/30/2005	3/30/2005	3/31/2005
Geotechnical								
BULK DENSITY OF SOILS	g/cc	1.34	1.26	1.44	1.38	1.41	1.52	1.31
SIEVE NO. 10, PERCENT PASSING	percent	100	67.52	95.17	76.32	60.65	99.91	99.75
SIEVE NO. 200, PERCENT PASSING	percent	1.66	1.67	1.06	0.97	3.85	1.31	2.03
SIEVE NO. 4, PERCENT PASSING	percent	100	80.38	95.66	86.02	78.16	100	100
SIEVE NO. 40, PERCENT PASSING	percent	97.51	42.28	90.78	63.08	34.52	96.22	98.53
SIEVE NO. 80, PERCENT PASSING	percent	6.13	4.48	5.16	22.72	7.38	9.29	16.52
SIEVE, NO. 100, PERCENT PASSING	percent	3.87	3.48	2.9	7.79	6.34	4.33	7.99
SIEVE, NO. 20, PERCENT PASSING	percent	99.98	56.46	94.22	67.83	45.96	99.81	99.41
SIEVE, NO. 60, PERCENT PASSING	percent	34.54	14.47	38.52	45.52	14.71	51.26	74.19
VOID RATIO OF SOILS	percent	48.9	73.6	45.2	40.4	59.8	49.5	48

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Wet Chemistry

	Station:	SO-061	SO-062	SO-062	SO-066	SO-067	SO-067	SO-070	SO-071
	Sample:	05CK14-16	05CK14-19	05CK14-20	05CK14-34	05CK14-41	05CK14-42	05CK14-65	05CK14-69
	Interval:	24 - 24.5	0.8 - 2.3	4 - 5.5	0.5 - 1	6 - 6.5	6 - 6.5	3.3 - 4.5	25 - 26.1
	Date:	3/15/2005	3/15/2005	3/15/2005	3/16/2005	3/17/2005	3/17/2005	3/22/2005	3/22/2005
Wet Chemistry									
TOTAL ORGANIC CARBON	ug/kg	2,000,000	3,400,000	2,100,000	170,000 J	1,200,000	900,000	730,000	1,400,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	SO-074	SO-074	SO-077	SO-077	SO-078	SO-078	SO-079	SO-081
	Sample:	05CK14-78	05CK14-79	05CK14-91	05CK14-92	05CK14-96	05CK28-01	05CK28-06	05CK28-15
	Interval:	0.4 - 0.8	2.1 - 2.4	2.6 - 2.8	24 - 24.3	0 - 0.6	20 - 20.7	24 - 24.9	4 - 4.9
	Date:	3/24/2005	3/24/2005	3/28/2005	3/28/2005	3/29/2005	3/29/2005	3/29/2005	3/30/2005
Wet Chemistry									
TOTAL ORGANIC CARBON	ug/kg	9,600,000	19,000,000	120,000 J	2,500,000	8,800,000	1,900,000	1,400,000	2,900,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Soil Samples
Wet Chemistry

	Station:	SO-081	SO-081	SO-081	SO-081
	Sample:	05CK28-16	05CK28-17	05CK28-26	05CK28-27
	Interval:	8 - 8.7	8 - 8.7	25 - 26.9	25 - 26.9
	Date:	3/30/2005	3/30/2005	3/31/2005	3/31/2005
Wet Chemistry					
TOTAL ORGANIC CARBON	ug/kg	5,600,000	7,400,000	2,800,000	2,000,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

Station:		GW-046	GW-046	GW-046	MW-003D	MW-003D	MW-003S	MW-003S	MW-011D	MW-011D
Sample:		ME2GT1	ME2GT2	ME2GT3	ME2HM7	ME2HM8	ME2HN2	ME2HN3	ME2HQ5	ME2HQ6
Date:		2/10/2005	2/10/2005	2/10/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005	5/2/2005	5/2/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	221 J	ND	ND	ND	ND	ND
ARSENIC	ug/L	ND	ND	ND	1,430	1,380 J	201	198	ND	ND
BARIUM	ug/L	143 J	159 J	108 J	297	246 J	ND	ND	ND	ND
CALCIUM METAL	ug/L	135,000	163,000	160,000	12,800	12,900 J	87,100	86,400	168,000	168,000
CHROMIUM, TOTAL	ug/L	ND	ND	ND	6.6 J	4.8 J	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	0.85 J	ND	0.70 J	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L				146 J		99.2		13	
IRON	ug/L	5,570	8,650	ND	2,750	630 J	363	265	8,070	197
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	59,200	81,200	36,500	23,300	25,300 J	19,100	18,700	40,700	41,000
MANGANESE	ug/L	514	383	320	42.9	33.0 J	53.8	53.3	46.7 J	44.5 J
MERCURY	ug/L	ND	ND	0.066 J	R	R	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	18,500 J	17,600 J	12,500 J	8,790 J	9,010 J	1,970 J	1,960 J	10,700 J	10,700 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	306,000 J	245,000 J	127,000 J	498,000 J	524,000 J	48,600 J	49,100 J	135,000	134,000
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	25.4 J	25.7 J	ND	ND	ND	ND
ZINC	ug/L	ND	ND	ND	ND	ND	ND	ND	5.9 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-011S	MW-011S	MW-014D	MW-014D	MW-014D	MW-014D	MW-014S	MW-014S	MW-015D
	Sample:	ME2HR4	ME2HR5	ME2HM1	ME2HM2	ME2HM3	ME2HM4	ME2HM5	ME2HM6	ME2HN0
	Date:	5/2/2005	5/2/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	368 J	ND	831 J	ND	ND	ND	ND
ARSENIC	ug/L	ND	ND	1,250	988	1,240	932	214	126	12.9 J
BARIUM	ug/L	ND	ND	523	467	516	470	ND	ND	ND
CALCIUM METAL	ug/L	90,600	91,400	177,000	168,000	169,000	164,000	89,000	90,700	156,000
CHROMIUM, TOTAL	ug/L	5.2 J	ND	ND	ND	1.1 J	ND	ND	ND	ND
COBALT	ug/L	ND	0.92 J	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L	1.7 J		26.2		24.0		5.4 J		20.0
IRON	ug/L	3,970	987	2,590	21.0 J	2,980	31.3 J	4,790	481	4220
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	28,400	28,700	64,400	61,000	61,300	59,300	19,400	19,800	72,300
MANGANESE	ug/L	332	332	55.9 J	48.4 J	62.6 J	46.4 J	260	256	81.1 J
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	2,730 J	2,790 J	5,970 J	6,270 J	7,070 J	6,700 J	3,250 J	3,290 J	7,580 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	51,500	51,600	637,000 J	595,000 J	144,000 J	624,000 J	91,000 J	91,500 J	59,400 J
VANADIUM (FUME OR DUST)	ug/L	ND	ND	2.1 J	1.1 J	2.7 J	0.86 J	ND	ND	ND
ZINC	ug/L	2.9 J	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

		MW-015D	MW-015S	MW-015S	MW-015S	MW-015S	MW-100	MW-100	MW-101	MW-101
	Station:	MW-015D	MW-015S	MW-015S	MW-015S	MW-015S	MW-100	MW-100	MW-101	MW-101
	Sample:	ME2HN1	ME2HN8	ME2HN9	ME2HP0	ME2HP1	ME2HL3	ME2HL4	ME2HL5	ME2HL6
	Date:	4/28/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/27/2005	4/27/2005	4/27/2005	4/27/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC	ug/L	ND	ND	ND	ND	ND	59.2	42.4	357	269
BARIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CALCIUM METAL	ug/L	151,000	101,000	100,000	104,000	104,000	69,200	68,900	87,100	84,800
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L		ND		ND		ND		ND	
IRON	ug/L	1,440	95.2 J	9.1 J	56.5 J	ND	2,020	222	1,880	280
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	70,700	25,200	25,100	25,300	25,200	11,900	11,800	18,800	18,400
MANGANESE	ug/L	72.8 J	619	555	603	562	138	131	290	238
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	7,270 J	2,410 J	2,420 J	2,420 J	2,370 J	973 J	1,000 J	1,200 J	1,230 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	58,200 J	5,060 J	5,150 J	6,440 J	5,220 J	13,300	12,900	24,200	24,400
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-102	MW-102	MW-500D	MW-500D	MW-500D	MW-500D	MW-500S	MW-500S	MW-501D
	Sample:	ME2HL9	ME2HM0	ME2HH4	ME2HH5	ME2HH6	ME2HH7	ME2HJ5	ME2HJ6	ME2HJ7
	Date:	4/28/2005	4/28/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/26/2005	4/26/2005	4/26/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	208 J	ND	ND	ND	ND	ND	ND
ARSENIC	ug/L	223	141	ND	ND	ND	ND	ND	ND	96.3
BARIUM	ug/L	ND	ND	330	330	340	335	ND	ND	ND
CALCIUM METAL	ug/L	86,200	86,800	129,000	129,000	130,000	132,000	37,000	38,400	95,600
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L	21.2		5.6 J		5.3 J		6.8 J		2.3 J
IRON	ug/L	3,120	12.7 J	5,600	4,040	5,670	3,840	ND	ND	4,940
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	20,000	20,100	46,500	47,000	47,600	48,100	10,800	11,200	14,600
MANGANESE	ug/L	221	215	121	109	117	110	67.1	69.6	71.4
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	3,160 J	3,080 J	6,720	7,000	6,920	6,690	1,920 J	2,030 J	3,560 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	62,800	60,900	270,000	261,000	258,000	261,000	61,200	63,100	65,000
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	ug/L	ND	ND	15.9 J	3.5 J	5 J	7.8 J	2.4 J	5.1 J	ND

Station:		MW-501D	MW-501S	MW-501S	MW-502D	MW-502D	MW-502S	MW-502S	MW-503D	MW-503D
Sample:		ME2HJ8	ME2HJ9	ME2HK0	ME2HZ8	ME2HZ9	ME2HZ2	ME2HZ3	ME2HY4	ME2HY5
Date:		4/26/2005	4/26/2005	4/26/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	67.0 J	80.9 J
ARSENIC	ug/L	47.5	ND	ND	ND	ND	ND	ND	11.2 J	ND
BARIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CALCIUM METAL	ug/L	95,800	125,000	125,000	220,000	214,000	103,000	104,000	395,000	391,000
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	1.4 J	1.0 J
COPPER	ug/L	ND	ND	ND	2.2 J	ND	1.8 J	ND	ND	ND
CYANIDE	ug/L		1.4 J		27.6		23.5		4.3 J	
IRON	ug/L	249	878	269	17,200	12,300	5,070	3,160	47,900	50,100
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	14,300	31,600	31,400	52,400	50,800	18,800	19,000	101,000	103,000
MANGANESE	ug/L	68.3	142	139	241	226	256	257	943	955
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	R	ND
NICKEL	ug/L	ND	2.2 J	2.3 J	ND	3.3 J	ND	ND	ND	ND
POTASSIUM	ug/L	3,460 J	5,810	5,740	8,230 J	7,840 J	20,200 J	20,500 J	12,900 J	12,500 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	63,100	133,000	136,000	192,000	192,000	120,000	117,000	347,000	339,000
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	0.99 J	ND	1.4 J	1 J	2.1 J	1.6 J
ZINC	ug/L	3.2 J	11.9 J	11.9 J	17.2 J	2.8 J	14.2 J	2.9 J	ND	174

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

	Station:	MW-503D	MW-503D	MW-503S	MW-503S	MW-504D	MW-504D	MW-504S	MW-504S	MW-505D
	Sample:	ME2HY8	ME2HY9	ME2HZ0	ME2HZ1	ME2HW0	ME2HW1	ME2HW2	ME2HW3	ME2HX2
	Date:	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	277
ARSENIC	ug/L	12.5 J	ND	18.2 J	18.4 J	5.7 J	ND	ND	ND	14.0 J
BARIUM	ug/L	ND	ND	ND	ND	247	232	ND	ND	ND
CALCIUM METAL	ug/L	394,000	393,000	146,000	148,000	138,000	137,000	130,000	131,000	146,000
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	2.4 J	2.1 J	2.6 J	1.7 J	ND	ND	2.3 J	ND	ND
CYANIDE	ug/L	ND		ND		23.8		ND		1.4 J
IRON	ug/L	50,500	47,000	35,100	32,000	4,000	642	892	561	9,290
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	104,000	103,000	29,100	30,100	58,900	59,100	47,300	47,300	42,400
MANGANESE	ug/L	923	927	1,080	1,100	172	170	918	913	110
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	3 J	2.7 J	3.2 J	ND	8.8 J	8.7 J	ND
POTASSIUM	ug/L	14,200 J	14,100 J	10,600 J	10,900 J	6,560	6,430	10,100	9,950	5,470 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	349,000	398,000	78,100	80,900	188,000	184,000	65,600	64,300	112,000
VANADIUM (FUME OR DUST)	ug/L	2.3 J	1.9 J	2.3 J	1.4 J	ND	ND	ND	ND	0.98 J
ZINC	ug/L	3.9 J	5.7 J	13.3 J	5.6 J	8.0 J	4.9 J	59.3 J	7.8 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		MW-505D	MW-505S	MW-505S	MW-506D	MW-506D	MW-506D	MW-506D	MW-506S	MW-506S
Sample:		ME2HX3	ME2HX0	ME2HX1	ME2HW4	ME2HW5	ME2HW6	ME2HW7	ME2HW8	ME2HW9
Date:		5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	21.3 J	27.4 J	21.2 J	ND	30.9 J	ND	28.7 J	ND	18.2 J
ARSENIC	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BARIUM	ug/L	ND	202	ND	ND	ND	ND	ND	ND	ND
CALCIUM METAL	ug/L	144,000	166,000	165,000	204,000	192,000	203,000	198,000	143,000	135,000
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	0.75 J	ND	ND	ND	4.2 J
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L		1.5 J		ND		ND		ND	
IRON	ug/L	3,550	15,400	10,800	9,510	3,630	9,690	3,700	9,110	4,580
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	41,900	34,400	34,100	60,300	58,500	61,100	58,200	33,400	31,200
MANGANESE	ug/L	104	392	390	143	138	146	141	392	372
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	3.2 J	ND	2.9 J	ND
POTASSIUM	ug/L	5,510 J	14,800 J	15,000 J	6,740	6,570 J	6,780	6,640 J	11,800	11,600 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	114,000	79,900	80,500	78,200	81,400	79,400	82,100	75,400	78,400
VANADIUM (FUME OR DUST)	ug/L	ND	1.3 J	0.84 J	ND	ND	ND	ND	ND	ND
ZINC	ug/L	ND	ND	ND	4.7 J	ND	5.7 J	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-507D	MW-507D	MW-507S	MW-507S	MW-508D	MW-508D	MW-508S	MW-508S	MW-509D
	Sample:	ME2HR6	ME2HR7	ME2HR8	ME2HR9	ME2HL1	ME2HL2	ME2HL7	ME2HL8	ME2HP6
	Date:	5/2/2005	5/2/2005	5/2/2005	5/2/2005	4/27/2005	4/27/2005	4/27/2005	4/27/2005	4/29/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	536	ND	ND	ND	297 J	ND	ND	ND	402 J
ARSENIC	ug/L	ND	ND	ND	ND	ND	ND	ND	11.1 J	ND
BARIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CALCIUM METAL	ug/L	97,800	96,200	58,700	60,200	69,700	71,500	89,400	90,400	170,000
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L	ND		ND		ND		ND		ND
IRON	ug/L	3,280	1,180	1,800	770	1,960	38.7 J	2,590	1,520	7,440
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	32,900	31,800	17,400	17,600	17,400	17,400	15,300	15,500	77,400
MANGANESE	ug/L	146	136	174	176	99.5	94.4	309	307	219
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	3,880 J	3,650 J	1,850 J	1,870 J	1,930 J	1,780 J	672 J	658 J	10,700 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	42,000	41,100	23,600	23,800	21,900	21,700	26,300	26,300	225,000 J
VANADIUM (FUME OR DUST)	ug/L	1.1 J	ND	0.99 J	ND	0.63 J	ND	ND	ND	0.75 J
ZINC	ug/L	8.5 J	5 J	2.5 J	5 J	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

	Station:	MW-509D	MW-509S	MW-509S	MW-510D	MW-510D	MW-510S	MW-510S	MW-511D	MW-511D
	Sample:	ME2HP7	ME2HP9	ME2HQ0	ME2HX4	ME2HX5	ME2HX6	ME2HX7	ME2HT6	ME2HT7
	Date:	4/29/2005	4/29/2005	4/29/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/3/2005	5/3/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	34.9 J	14.0 J	16.5 J	ND	ND	ND
ARSENIC	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BARIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	230	221
CALCIUM METAL	ug/L	174,000	160,000	151,000	127,000	125,000	94,000	92,800	96,800	94,200
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	2.0 J	ND	ND	ND
CYANIDE	ug/L		6.0 J		ND		ND		ND	
IRON	ug/L	1,990	531	306	2,730	498	772	358	2,410	1490
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	79,200	35,900	34,000	55,600	55,200	25,300	24,900	37,700	36,700
MANGANESE	ug/L	215	369	364	51.2 J	49.5 J	268	268	108	101
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	10,400 J	10,800 J	9,850 J	7,320 J	7,380 J	12,300 J	11,600 J	5,080	5,060
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	257,000	122,000 J	126,000	131,000	131,000	57,400	55,600	52,500	52,400
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	1.1 J	0.91 J	ND	ND
ZINC	ug/L	2.4 J	ND	9.6 J	ND	ND	ND	ND	3.7 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		MW-511S	MW-511S	MW-512D	MW-512D	MW-512S	MW-512S	MW-513D	MW-513D	MW-513S
Sample:		ME2HT8	ME2HT9	ME2HT0	ME2HT1	ME2HS4	ME2HS5	ME2HS6	ME2HS7	ME2HS8
Date:		5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	244	ND	ND
ARSENIC	ug/L	ND	ND	ND	ND	ND	ND	5 J	ND	ND
BARIUM	ug/L	ND	ND	337	314	ND	ND	215 J	ND	ND
CALCIUM METAL	ug/L	139,000	142,000	102,000	102,000	84,700	85,300	95,900	93,000	83,300
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	1 J	ND	ND	ND
COPPER	ug/L	1.6 J	ND	ND	ND	ND	ND	5.7 J	ND	ND
CYANIDE	ug/L	ND		ND		ND		ND		ND
IRON	ug/L	ND	ND	3,190	172	134	ND	5,180	663	2,030
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	39,900	40,500	40,000	40,000	26,100	26,400	32,600	31,900	20,900
MANGANESE	ug/L	795	807	75.0	72.3	475	480	157	142	591
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	3.2 J	2.9 J	ND	ND	ND	2.5 J	ND	ND	ND
POTASSIUM	ug/L	8,150	8,390	6,480	6,500	4,610 J	4,650 J	9,220 J	9,150	7,120
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	56,800	58,900	99,900	100,000	37,400	37,900	86,700	87,100	48,900
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	ug/L	10.1 J	6.6 J	8.7 J	6.3 J	8 J	24.3 J	5.8 J	2.5 J	11.4 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

	Station:	MW-513S	MW-514D	MW-514D	MW-514S	MW-514S	MW-515D	MW-515D	MW-515S	MW-515S
	Sample:	ME2HS9	ME2HY2	ME2HY3	ME2HY6	ME2HY7	ME2HS0	ME2HS1	ME2HS2	ME2HS3
	Date:	5/3/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	112 J	19.3 J	ND	ND	ND	ND	ND	ND
ARSENIC	ug/L	6.5 J	ND	ND	ND	ND	70.1	47.4	22.3	23.9
BARIUM	ug/L	ND	312	272	ND	ND	751 J	652 J	ND	ND
CALCIUM METAL	ug/L	83,200	144,000	145,000	95,600	94,900	85,700	86,500	88,400	88,000
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COBALT	ug/L	ND	ND	ND	1.2 J	1.3 J	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	6.6 J	6.4 J	3.9 J	ND	ND	ND
CYANIDE	ug/L		1.7 J		ND		264		6.3 J	
IRON	ug/L	931	8,220	549	ND	ND	4,450	270	5,790	4,410
LEAD	ug/L	ND	ND	4.0 J	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	20,900	55,700	55,500	34,800	34,600	134,000	136,000	20,400	20,400
MANGANESE	ug/L	594	127	127	ND	ND	55.9 J	52.5 J	392	391
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	4.9 J	ND	ND	6.9 J	8 J	3.6 J	1.9 J	ND	ND
POTASSIUM	ug/L	7,030	6,790 J	7,070 J	9,240 J	9,070 J	10,400 J	10,500 J	6,250 J	6,220 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	47,800	80,000	78,900	54,500	54,500	102,000	103,000	26,600	27,200
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	0.81 J	3 J	1.5 J	ND	ND
ZINC	ug/L	6.6 J	ND	ND	7.1 J	6.4 J	11.9 J	7.1 J	11.3 J	11.2 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

Station:		MW-516D	MW-516D	MW-516S	MW-516S	MW-517D	MW-517D	MW-517S	MW-517S	W-003
Sample:		ME2HQ7	ME2HQ8	ME2HQ3	ME2HQ4	ME2HY0	ME2HY1	ME2HX8	ME2HX9	ME2HT2
Date:		5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/5/2005	5/5/2005	5/4/2005	5/4/2005	5/3/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	86.5 J	17.0 J	22.1 J	13.3 J	296
ARSENIC	ug/L	343	307	12.2 J	14.3 J	ND	ND	ND	ND	8.3 J
BARIUM	ug/L	459 J	380 J	ND	ND	234	ND	ND	ND	223
CALCIUM METAL	ug/L	35,100	34,400	151,000	146,000	146,000	138,000	100,000	100,000	123,000
CHROMIUM, TOTAL	ug/L	9.4 J	8.2 J	ND	ND	ND	ND	ND	ND	3.0 J
COBALT	ug/L	3.6 J	2.9 J	3.9 J	4.2 J	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	1.6 J	ND	ND	ND	27.2
CYANIDE	ug/L	1,020		ND		18.7		ND		ND
IRON	ug/L	3,200	908	8,840	7,450	6,470	460	696	551	8,020
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	33,300	33,100	34,500	33,500	49,000	47,200	22,300	21,800	34,800
MANGANESE	ug/L	96	91.3	587	582	203	186	267	262	201
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	15.1 J	11 J	8.3 J	8.2 J	ND	ND	ND	ND	2.1 J
POTASSIUM	ug/L	13,900 J	14,200 J	4,470 J	4,390 J	11,600 J	11,300 J	7,060 J	7,140 J	10,100
SELENIUM	ug/L	7.9 J	ND	9.9 J	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	512,000	521,000	46,100	46,800	195,000	189,000	78,500	78,600	143,000
VANADIUM (FUME OR DUST)	ug/L	25.1 J	23 J	ND	ND	ND	ND	1.7 J	1.7 J	ND
ZINC	ug/L	5.7 J	18.2 J	7.9 J	7.2 J	ND	ND	ND	ND	9.8 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	W-003	W-004	W-004	W-005	W-005	W-006	W-006	W-007	W-007
	Sample:	ME2HT3	ME2HP4	ME2HP5	ME2HK3	ME2HK4	ME2HK1	ME2HK2	ME2HH8	ME2HH9
	Date:	5/3/2005	4/29/2005	4/29/2005	4/26/2005	4/26/2005	4/26/2005	4/26/2005	4/25/2005	4/25/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	681 J	ND	557	ND	ND	ND	382 J	279 J
ARSENIC	ug/L	ND	ND	ND	ND	ND	ND	ND	43.7	32.5
BARIUM	ug/L	ND	ND	ND	285	259	487	486	ND	ND
CALCIUM METAL	ug/L	118,000	120,000	124,000	115,000	108,000	158,000	158,000	108,000	102,000
CHROMIUM, TOTAL	ug/L	ND	0.87 J	ND	ND	ND	1.9 J	ND	ND	ND
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	0.96 J	ND
COPPER	ug/L	ND	41.1 J	ND	ND	ND	ND	ND	ND	ND
CYANIDE	ug/L		ND		1 J		1.2 J		1.5 J	
IRON	ug/L	2,520	5,490	1,720	6,280	2,320	8,110	5,800	6,030	2,930
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	33,200	27,000	26,800	34,200	31,600	38,800	38,300	44,100	41,100
MANGANESE	ug/L	175	213	210	105	81.3	162	147	165	128
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	4.5 J	3.9 J	ND	ND
POTASSIUM	ug/L	9,700	8,680 J	8,170 J	3,110 J	2,960 J	7,120	7,160	2,850 J	2,730 J
SELENIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	144,000	106,000 J	118,000	88,300	89,900	401,000	414,000	145,000	137,000
VANADIUM (FUME OR DUST)	ug/L	ND	0.98 J	ND	0.87 J	ND	ND	ND	0.83 J	ND
ZINC	ug/L	3.3 J	ND	ND	6.4 J	2.9 J	10 J	6.1 J	10.8 J	3.5 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Metals

	Station:	W-009	W-009	W-010	W-010	W-011	W-011	W-012	W-012	W-013
	Sample:	ME2HK5	ME2HK6	ME2HK9	ME2HL0	ME2HH0	ME2HH1	ME2HH2	ME2HH3	ME2HK7
	Date:	4/26/2005	4/26/2005	4/27/2005	4/27/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/27/2005
Metals										
ALUMINUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	207 J	ND	297 J	ND	ND
ARSENIC	ug/L	ND	ND	ND	ND	ND	ND	14.7 J	ND	112
BARIUM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CALCIUM METAL	ug/L	183,000	185,000	234,000	236,000	138,000	136,000	107,000	99,400	93,500
CHROMIUM, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	3.9 J
COBALT	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.4 J
CYANIDE	ug/L	21.6 J		83.6		40.4		8.2 J		ND
IRON	ug/L	10,400	8,320	20,500	10,200	11,100	2,370	3,580	140	11,000
LEAD	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAGNESIUM	ug/L	46,500	47,200	52,700	53,000	32,700	32,400	24,000	21,500	16,800
MANGANESE	ug/L	199 J	197 J	179 J	174 J	163	161	239	195	336
MERCURY	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	ug/L	5,620 J	5,590 J	9,380 J	9,220 J	5,880	6,150	3,990 J	3,860 J	2,440 J
SELENIUM	ug/L	ND	ND	10.7 J	ND	ND	ND	ND	ND	ND
SODIUM	ug/L	76,800	74,800	150,000	149,000	149,000	150,000	34,200	33,900	53,000
VANADIUM (FUME OR DUST)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	ug/L	ND	ND	ND	ND	3.3 J	3.8 J	7.9 J	5 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	W-013
	Sample:	ME2HK8
	Date:	4/27/2005
Metals		
ALUMINUM (FUME OR DUST)	ug/L	ND
ARSENIC	ug/L	41.8
BARIUM	ug/L	ND
CALCIUM METAL	ug/L	90,900
CHROMIUM, TOTAL	ug/L	ND
COBALT	ug/L	ND
COPPER	ug/L	ND
CYANIDE	ug/L	
IRON	ug/L	1,560
LEAD	ug/L	ND
MAGNESIUM	ug/L	17,000
MANGANESE	ug/L	319
MERCURY	ug/L	ND
NICKEL	ug/L	ND
POTASSIUM	ug/L	2,360 J
SELENIUM	ug/L	ND
SODIUM	ug/L	50,700
VANADIUM (FUME OR DUST)	ug/L	ND
ZINC	ug/L	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
PCBs

	Station:	MW-501S	MW-505D	MW-510D	MW-512S	MW-517D	MW-517S	W-003	W-010
	Sample:	E2HJ9	E2HX2	E2HX4	E2HS4	E2HY0	E2HX8	E2HT2	E2HK9
	Date:	4/26/2005	5/4/2005	5/4/2005	5/3/2005	5/5/2005	5/4/2005	5/3/2005	4/27/2005
PCBs									
PCB-1016 (AROCHLOR 1016)	ug/L	14	ND	ND	0.19 J	ND	ND	ND	2.0
PCB-1232 (AROCHLOR 1232)	ug/L	ND	ND	ND	ND	110 J	ND	ND	ND
PCB-1248 (AROCHLOR 1248)	ug/L	ND	0.27	0.18 J	ND	ND	61 J	2.4 J	ND
PCB-1254 (AROCHLOR 1254)	ug/L	ND	ND	ND	ND	ND	ND	1.5 J	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Semivolatile Organic Compounds

	Station:	MW-003D	MW-011S	MW-014D	MW-014D	MW-014S	MW-015D	MW-102	MW-500D
	Sample:	E2HM7	E2HR4	E2HM1	E2HM3	E2HM5	E2HN0	E2HL9	E2HH4
	Date:	4/28/2005	5/2/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/25/2005
Semivolatile Organic Compounds									
2,4-DIMETHYLPHENOL	ug/L	2300 J	ND	ND	ND	ND	ND	ND	ND
2-METHYLPHENOL (O-CRESOL)	ug/L	2,300 J	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/L	50,000	ND	3.3 J	9.2	6.4	14	12	ND
ACENAPHTHENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
DIBENZOFURAN	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/L	ND	0.65 J	1.5 J	0.82 J	ND	0.73 J	ND	0.55 J
FLUORANTHENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
FLUORENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PENTACHLOROPHENOL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PHENOL	ug/L	140	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Semivolatile Organic Compounds

	Station:	MW-503D	MW-503S	MW-505D	MW-505S	MW-506D	MW-506D	MW-506S	MW-507S
	Sample:	E2HY8	E2HZ0	E2HX2	E2HX0	E2HW4	E2HW6	E2HW8	E2HR8
	Date:	5/5/2005	5/5/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/2/2005
Semivolatile Organic Compounds									
2,4-DIMETHYLPHENOL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLPHENOL (O-CRESOL)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/L	ND	28	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ug/L	ND	ND	ND	9.50	ND	ND	ND	ND
ACETOPHENONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	ug/L	ND	ND	ND	2.60 J	ND	ND	ND	ND
DIBENZOFURAN	ug/L	ND	ND	ND	2.70 J	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/L	0.58 J	ND	0.51 J	ND	0.70 J	0.95 J	0.53 J	0.94 J
FLUORANTHENE	ug/L	ND	ND	ND	5.50	ND	ND	ND	ND
FLUORENE	ug/L	ND	ND	ND	7.60	ND	ND	ND	ND
PENTACHLOROPHENOL	ug/L	ND	0.96 J	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/L	ND	ND	ND	29	ND	ND	ND	ND
PHENOL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	ug/L	ND	ND	ND	3.10 J	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Semivolatile Organic Compounds

	Station:	MW-508D	MW-510D	MW-515D	MW-515S	MW-516D	MW-517D	MW-517S	W-003
	Sample:	E2HL1	E2HX4	E2HS0	E2HS2	E2HQ7	E2HY0	E2HX8	E2HT2
	Date:	4/27/2005	5/4/2005	5/2/2005	5/2/2005	5/2/2005	5/5/2005	5/4/2005	5/3/2005
Semivolatile Organic Compounds									
2,4-DIMETHYLPHENOL	ug/L	ND	ND	3.6 J	ND	3000	4.50 J	2.90 J	ND
2-METHYLPHENOL (O-CRESOL)	ug/L	ND	ND	ND	ND	1,000	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/L	ND	ND	ND	ND	57	2.90 J	ND	ND
ACENAPHTHENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
ACETOPHENONE	ug/L	ND	ND	1.4 J	ND	ND	ND	ND	ND
ANTHRACENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
DIBENZOFURAN	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/L	0.51 J	0.61 J	ND	1.5 J	ND	ND	ND	0.85 J
FLUORANTHENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
FLUORENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PENTACHLOROPHENOL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
PHENOL	ug/L	ND	ND	4.5 J	ND	ND	ND	ND	ND
PYRENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Semivolatile Organic Compounds

	Station:	W-005	W-010	W-011
	Sample:	E2HK3	E2HK9	E2HH0
	Date:	4/26/2005	4/27/2005	4/25/2005
Semivolatile Organic Compounds				
2,4-DIMETHYLPHENOL	ug/L	ND	ND	ND
2-METHYLPHENOL (O-CRESOL)	ug/L	ND	ND	ND
4-METHYLPHENOL (P-CRESOL)	ug/L	ND	ND	ND
ACENAPHTHENE	ug/L	ND	ND	ND
ACETOPHENONE	ug/L	ND	ND	ND
ANTHRACENE	ug/L	ND	ND	ND
DIBENZOFURAN	ug/L	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/L	0.53 J	0.67 J	0.59 J
FLUORANTHENE	ug/L	ND	ND	ND
FLUORENE	ug/L	ND	ND	ND
PENTACHLOROPHENOL	ug/L	ND	ND	ND
PHENANTHRENE	ug/L	ND	ND	ND
PHENOL	ug/L	ND	ND	ND
PYRENE	ug/L	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Volatile Organic Compounds

Station:		GW-046	GW-046	GW-046	GW-047	GW-047	GW-047	GW-048	GW-048	GW-048
Sample:		E2GT1	E2GT2	E2GT3	E2GT6	E2GT7	E2GT9	E2GW0	E2GW1	E2GW2
Date:		2/10/2005	2/10/2005	2/10/2005	2/10/2005	2/10/2005	2/10/2005	2/11/2005	2/11/2005	2/11/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	160 J
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND
1,1-DICHLOROETHANE	ug/L	0.55	0.51	ND	ND	ND	ND	26	ND	ND
1,1-DICHLOROETHYLENE	ug/L	ND	ND	ND	ND	110 J	ND	120 J	130 J	150 J
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	160 J
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	110 J
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	2.7 J	2.4 J	2.5 J	ND	ND	15 J	7.8	ND	ND
BENZENE	ug/L	0.2 J	0.18 J	0.26 J	ND	ND	ND	3.1	ND	ND
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	0.16 J	0.29 J	ND	ND	0.61 J	ND	ND	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.48 J	ND	ND
CHLOROFORM	ug/L	ND	ND	ND	ND	ND	ND	1.6	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	ND	ND	ND	9200	20,000	27	2,100 J	14,000	11,000
CYCLOHEXANE	ug/L	0.24 J	0.16 J	0.26 J	ND	ND	ND	0.36 J	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	0.12 J	ND	0.13 J	ND	ND	ND	0.18 J	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	170 J
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	0.43 J	ND	110 J
TOLUENE	ug/L	0.38 J	0.28 J	0.44 J	ND	ND	0.49 J	1.1	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/L	ND	ND	ND	69 J	130 J	ND	230 J	170 J	150 J
TRICHLOROETHYLENE	ug/L	ND	0.3 J	0.45 J	720	2,300	17	1,500	16,000	1,600
VINYL CHLORIDE	ug/L	ND	ND	ND	2,800	3,000	4.5	1,400 J	4,300	3,700
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	GW-049	GW-049	GW-049	GW-049	GW-055	GW-055	GW-055	GW-056	GW-056
	Sample:	E2GW3	E2GW4	E2GW7	E2GW8	E2GZ5	E2GZ6	E2GZ7	E2HA2	E2HA3
	Date:	2/11/2005	2/11/2005	2/11/2005	2/11/2005	2/22/2005	2/22/2005	2/22/2005	2/23/2005	2/23/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	2.3	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	ND	ND	0.43 J	0.44 J	2.8	ND	0.98	3.9	0.21 J
1,1-DICHLOROETHYLENE	ug/L	ND	14 J	210 J	220 J	ND	6.7 J	8.8	ND	0.85
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	4.1 J	3.2 J	6.3 J	ND	2.4 J	ND	2.1 J
BENZENE	ug/L	ND	ND	0.18 J	0.19 J	0.85 J	ND	0.44 J	0.17 J	ND
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	1.7	0.44 J	ND	ND	0.11 J	ND	ND
CHLOROETHANE	ug/L	110	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	ND	ND	ND	ND	0.28 J	0.98	ND
CHLOROMETHANE	ug/L	ND	ND	0.17 J	ND	ND	4.1	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	ND	690	1,500 J	1,700 J	5,200	6,200	720	350	350
CYCLOHEXANE	ug/L	ND	ND	0.13 J	0.12 J	ND	ND	0.2 J	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	0.11 J	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	0.21 J	ND	ND
METHYLENE CHLORIDE	ug/L	2.3 J	ND	ND	ND	0.75 J	ND	0.17 J	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	ND	2	2.1	ND	ND	0.39 J	0.15 J	0.16 J
TRANS-1,2-DICHLOROETHENE	ug/L	ND	ND	320 J	250 J	33	18	6.5	7.7	2
TRICHLOROETHYLENE	ug/L	ND	ND	1,200 J	1,300 J	1,300	2 J	1,900	630	8.7
VINYL CHLORIDE	ug/L	ND	290	490 J	500 J	2,300	1,700	16	520	900
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	0.27 J	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	GW-056	MW-003D	MW-003S	MW-011D	MW-011S	MW-014D	MW-014D	MW-014S	MW-015D
	Sample:	E2HA6	E2HM7	E2HN2	E2HQ5	E2HR4	E2HM1	E2HM3	E2HM5	E2HN0
	Date:	2/23/2005	4/28/2005	4/28/2005	5/2/2005	5/2/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.38 J	0.28 J	ND
1,1-DICHLOROETHYLENE	ug/L	ND	ND	ND	ND	6.7	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	0.062 J	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	1.6 J	ND	ND	ND	ND	ND	0.37 J	ND	ND
2-HEXANONE	ug/L	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	3.6 J	33	ND	ND	ND	ND	1.9 J	ND	ND
BENZENE	ug/L	ND	390 J	0.031 J	ND	ND	84 J	83 J	0.039 J	0.046 J
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	0.87 J	ND	ND	ND
CARBON DISULFIDE	ug/L	0.17 J	ND	0.11 J	ND	ND	0.081 J	0.11 J	ND	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	0.059 J	ND	ND	0.049 J	ND	0.048 J	0.061 J
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	0.48 J	ND	0.53	1.7	2,100 J	ND	0.67	0.37 J	0.99
CYCLOHEXANE	ug/L	ND	ND	0.11 J	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	7.2	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	0.10 J	ND	ND	0.14 J	ND	ND	0.17 J
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	0.19 J	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	22	ND	ND	1.3 J	0.067 J	0.079 J	ND	0.030 J
TRANS-1,2-DICHLOROETHENE	ug/L	ND	ND	0.19 J	ND	25	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1.8	ND	ND	ND	2.1 J	ND	ND	ND	ND
VINYL CHLORIDE	ug/L	0.32 J	ND	0.86	27	120 J	1.8	1.8	ND	ND
XYLENES, TOTAL	ug/L	ND	4.0	ND	ND	0.87 J	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Volatile Organic Compounds

Station:		MW-015S	MW-015S	MW-100	MW-101	MW-102	MW-500D	MW-500D	MW-500S	MW-501D
Sample:		E2HN8	E2HP0	E2HL3	E2HL5	E2HL9	E2HH4	E2HH6	E2HJ5	E2HJ7
Date:		4/29/2005	4/29/2005	4/27/2005	4/27/2005	4/28/2005	4/25/2005	4/25/2005	4/26/2005	4/26/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	1.6	1.6	ND	0.065 J	0.089 J	0.13 J	0.12 J	ND	0.19 J
1,1-DICHLOROETHYLENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	0.081 J	ND	0.067 J	ND	ND	0.10 J	0.10 J	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/L	0.16 J	0.16 J	0.047 J	0.042 J	1.3 J	0.70	0.64	0.076 J	0.55
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	0.15 J	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	0.14 J	0.14 J	0.11 J	0.23 J	0.24 J	0.20 J	0.19 J
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.55	ND	0.24 J
CHLOROFORM	ug/L	0.052 J	ND	ND	ND	0.057 J	0.52	ND	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	41 J	47 J	ND	ND	0.47 J	25	25	69	ND
CYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	0.079 J	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	0.087 J	ND	0.10 J	ND	0.24 J	0.18 J	ND	0.22 J
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	ND	ND	ND	0.033 J	0.057 J	0.050 J	ND	0.055 J
TRANS-1,2-DICHLOROETHENE	ug/L	2.2	2.3	ND	ND	0.21 J	0.70	0.66	1.5	ND
TRICHLOROETHYLENE	ug/L	20	19	ND	ND	0.081 J	ND	ND	ND	ND
VINYL CHLORIDE	ug/L	6.0	6.1	ND	ND	ND	9.2	9.3	14	ND
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Volatile Organic Compounds

	Station:	MW-501S	MW-502D	MW-502S	MW-503D	MW-503D	MW-503S	MW-504D	MW-504S	MW-505D
	Sample:	E2HJ9	E2HZ8	E2HZ2	E2HY4	E2HY8	E2HZ0	E2HW0	E2HW2	E2HX2
	Date:	4/26/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/4/2005	5/4/2005	5/4/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	2,900	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	680 J	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	6.1	1.50	0.76	ND	ND	480	ND	ND	0.14 J
1,1-DICHLOROETHYLENE	ug/L	ND	0.71	ND	420	480	300	7.70	6.20 J	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	0.096 J	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	27000	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.11 J
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/L	ND	ND	0.12 J	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	0.83	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	ND	ND	ND	ND	0.12 J	ND	ND
CHLOROETHANE	ug/L	ND	ND	1.90	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	ND	40 J	ND	140	ND	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	24	91	2	250,000 J	280,000 J	51,000 J	1,000	6,200 J	9
CYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	ND	ND	ND	ND	51 J	0.12 J	0.58 J	0.04 J
TRANS-1,2-DICHLOROETHENE	ug/L	0.92	2.20	ND	460	500	130	13	27	0.10 J
TRICHLOROETHYLENE	ug/L	0.18 J	ND	0.45 J	570	360 J	ND	43	420	2.40
VINYL CHLORIDE	ug/L	1.0	8	0.74	12,000 J	12,000 J	10,000 J	980 J	1,100	0.67
XYLENES, TOTAL	ug/L	ND	ND	0.07 J	ND	ND	ND	ND	ND	0.16 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Volatile Organic Compounds

	Station:	MW-505S	MW-506D	MW-506D	MW-506S	MW-507D	MW-507S	MW-508D	MW-508S	MW-509D
	Sample:	E2HX0	E2HW4	E2HW6	E2HW8	E2HR6	E2HR8	E2HL1	E2HL7	E2HP6
	Date:	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/2/2005	5/2/2005	4/27/2005	4/27/2005	4/29/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	0.13 J	ND	ND	0.71	ND	ND	ND	ND	0.15 J
1,1-DICHLOROETHYLENE	ug/L	ND	210	210	ND	ND	0.12 J	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	0.09 J	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/L	ND	ND	ND	ND	ND	ND	0.046 J	0.050 J	ND
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.13 J	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	21 J	ND	0.39 J	ND	0.57	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	6.90 J	89,000	90,000 J	2.80	720	56	ND	ND	ND
CYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.065 J	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	0.16 J	ND	0.14 J
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	ND	ND	ND	ND	ND	0.061 J	ND	0.091 J
TRANS-1,2-DICHLOROETHENE	ug/L	0.14 J	170	170	ND	31	2.7	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1.70	ND	ND	3.80	ND	ND	ND	ND	ND
VINYL CHLORIDE	ug/L	0.43 J	16,000	16,000 J	19	140 J	2.1 J	ND	ND	ND
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-509S	MW-510D	MW-510S	MW-511D	MW-511S	MW-512D	MW-512S	MW-513D	MW-513S
	Sample:	E2HP9	E2HX4	E2HX6	E2HT6	E2HT8	E2HT0	E2HS4	E2HS6	E2HS8
	Date:	4/29/2005	5/4/2005	5/4/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	0.44 J	ND	0.28 J	ND	ND	ND	ND	0.64	0.15 J
1,1-DICHLOROETHYLENE	ug/L	ND	ND	ND	ND	ND	11 J	19 J	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.87 J	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/L	ND	ND	ND	ND	ND	2.6 J	0.61 J	ND	ND
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	ND	0.29 J	0.67	ND	ND	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	ND	4.70	11	20	150	2,700	2,100	0.75	2.0
CYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	0.24 J	0.14 J	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	1.9 J	1.1 J	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	0.06 J	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/L	ND	0.08 J	0.19 J	0.19 J	3.3	3.8 J	17	ND	ND
TRICHLOROETHYLENE	ug/L	0.15 J	0.92	2.40	2.7	430	11	780	ND	ND
VINYL CHLORIDE	ug/L	ND	2.20	5.10	68	20	1,100 J	20	1.2	ND
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		MW-514D	MW-514S	MW-515D	MW-515S	MW-516D	MW-516S	MW-517D	MW-517S	SO-057
Sample:		E2HY2	E2HY6	E2HS0	E2HS2	E2HQ7	E2HQ3	E2HY0	E2HX8	E2HA7
Date:		5/5/2005	5/5/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/5/2005	5/4/2005	2/24/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	0.11 J	0.41 J	2.8
1,1-DICHLOROETHYLENE	ug/L	11 J	1.90 J	ND	ND	ND	ND	ND	ND	13
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	0.25 J	0.81	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	0.07 J	1	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.3 J
BENZENE	ug/L	ND	ND	380	1.9	410 J	ND	ND	ND	0.44 J
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.38 J
CHLOROFORM	ug/L	ND	ND	0.30 J	ND	ND	ND	ND	ND	0.83
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	4,200 J	1,100 J	ND	0.11 J	ND	0.20 J	0.80 J	0.74 J	3,500
CYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	ND	ND	ND	ND	75	ND	ND	ND	0.21 J
TRANS-1,2-DICHLOROETHENE	ug/L	16 J	5.70	ND	ND	ND	ND	0.17 J	ND	110
TRICHLOROETHYLENE	ug/L	810	970	ND	ND	ND	ND	0.28 J	0.25 J	210
VINYL CHLORIDE	ug/L	2,600 J	200 J	ND	ND	ND	ND	ND	5.70	3.7
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

Station:		SO-057	SO-058	SO-058	SO-058	SO-059	SO-059	SO-059	SO-059	SO-060
Sample:		E2HA8	E2HB1	E2HB2	E2HB3	E2HB5	E2HB6	E2HB7	E2HB8	E2HC1
Date:		2/24/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	2/28/2005	3/1/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	0.58	13	ND	4.8	5.1	2.1 J	140 J	130 J	ND
1,1-DICHLOROETHYLENE	ug/L	ND	49	ND	10	27	6.7	64 J	52 J	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	R	R	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	R	R	ND
ACETONE	ug/L	1.8 J	ND	ND	ND	ND	ND	R	R	ND
BENZENE	ug/L	0.29 J	ND	ND	0.49 J	3.1	ND	R	R	0.21 J
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	ug/L	ND	ND	ND	ND	ND	ND	R	R	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	310	23,000	2.2	1,900	12,000	6700	19,000 J	16,000 J	0.22 J
CYCLOHEXANE	ug/L	ND	ND	ND	0.22 J	ND	ND	R	R	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	R	R	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	R	R	ND
METHYLCYCLOHEXANE	ug/L	ND	ND	ND	0.28 J	ND	ND	R	R	ND
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	0.38 J	ND	ND	0.49 J	ND	ND	R	R	0.28 J
TRANS-1,2-DICHLOROETHENE	ug/L	2.1	120	ND	12	26	31	67 J	59 J	ND
TRICHLOROETHYLENE	ug/L	0.75	ND	ND	38 J	0.95 J	ND	3.2 J	2.6 J	1.1
VINYL CHLORIDE	ug/L	220	12,000	25	860	6,500	3,400	4,200 J	4,400 J	ND
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	R	R	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Volatile Organic Compounds

Station:		SO-060	W-003	W-004	W-005	W-006	W-007	W-009	W-010	W-011
Sample:		E2HC3	E2HT2	E2HP4	E2HK3	E2HK1	E2HH8	E2HK5	E2HK9	E2HH0
Date:		3/1/2005	5/3/2005	4/29/2005	4/26/2005	4/26/2005	4/25/2005	4/26/2005	4/27/2005	4/25/2005
Volatile Organic Compounds										
1,1,1-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ug/L	ND	ND	0.84	ND	300	2.0	ND	0.62	0.23 J
1,1-DICHLOROETHYLENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	0.074 J	0.070 J
1,2-DICHLOROPROPANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	ug/L	0.17 J	ND	7.1	0.050 J	11 J	0.099 J	ND	0.041 J	0.043 J
BROMODICHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ug/L	ND	ND	ND	ND	270 J	ND	4.1	ND	ND
CARBON DISULFIDE	ug/L	0.19 J	ND	ND	0.13 J	ND	0.17 J	ND	0.18 J	ND
CHLOROETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ug/L	ND	ND	ND	ND	ND	0.048 J	ND	ND	ND
CHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	0.56	3.8	0.62	ND	4,400	0.48 J	470	46	0.24 J
CYCLOHEXANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL ACETATE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE	ug/L	0.17 J	0.20 J	0.13 J	0.21 J	ND	0.18 J	ND	0.19 J	0.21 J
METHYLENE CHLORIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ug/L	0.28 J	ND	ND	ND	8.9 J	0.056 J	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/L	ND	0.25 J	ND	ND	21 J	ND	24	0.94	ND
TRICHLOROETHYLENE	ug/L	ND	ND	ND	ND	ND	ND	ND	18	ND
VINYL CHLORIDE	ug/L	0.39 J	1.8	11	ND	2,000	4.3	130	1.5	ND
XYLENES, TOTAL	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Volatile Organic Compounds

	Station:	W-012	W-013
	Sample:	E2HH2	E2HK7
	Date:	4/25/2005	4/27/2005
Volatile Organic Compounds			
1,1,1-TRICHLOROETHANE	ug/L	ND	ND
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	ND
1,1,2-TRICHLORO-1,2,	ug/L	ND	ND
1,1,2-TRICHLOROETHANE	ug/L	ND	ND
1,1-DICHLOROETHANE	ug/L	2.6	ND
1,1-DICHLOROETHYLENE	ug/L	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	ND	ND
1,2-DICHLOROETHANE	ug/L	0.10 J	ND
1,2-DICHLOROPROPANE	ug/L	ND	ND
1,3-DICHLOROBENZENE	ug/L	ND	ND
1,4-DICHLOROBENZENE	ug/L	ND	ND
2-BUTANONE	ug/L	ND	ND
2-HEXANONE	ug/L	ND	ND
ACETONE	ug/L	ND	ND
BENZENE	ug/L	0.082 J	0.039 J
BROMODICHLOROMETHANE	ug/L	ND	ND
BROMOFORM	ug/L	ND	ND
CARBON DISULFIDE	ug/L	0.19 J	0.19 J
CHLOROETHANE	ug/L	1.3	ND
CHLOROFORM	ug/L	ND	ND
CHLOROMETHANE	ug/L	ND	ND
CIS-1,2-DICHLOROETHYLENE	ug/L	15	ND
CYCLOHEXANE	ug/L	ND	ND
DIBROMOCHLOROMETHANE	ug/L	ND	ND
ETHYLBENZENE	ug/L	ND	ND
METHYL ACETATE	ug/L	ND	ND
METHYLCYCLOHEXANE	ug/L	ND	ND
METHYLENE CHLORIDE	ug/L	ND	ND
TETRACHLOROETHYLENE(PCE)	ug/L	ND	ND
TOLUENE	ug/L	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/L	0.50	ND
TRICHLOROETHYLENE	ug/L	ND	0.060 J
VINYL CHLORIDE	ug/L	25	ND
XYLENES, TOTAL	ug/L	ND	ND

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Wet Chemistry

	Station:	MW-003D	MW-003S	MW-011D	MW-011S	MW-014D	MW-014D	MW-014S	MW-015D
	Sample:	05CK29-22	05CK29-24	05CK29-32	05CK29-34	05CK29-19	05CK29-20	05CK29-21	05CK29-23
	Date:	4/28/2005	4/28/2005	5/2/2005	5/2/2005	4/28/2005	4/28/2005	4/28/2005	4/28/2005
Wet Chemistry									
ALKALINITY, TOTAL (AS CACO3)	ug/L	2,300,000	270,000	370,000	360,000	350,000	340,000	320,000	400,000
CHLORIDE (AS CL)	ug/L	1,900,000	43,000	380,000	43,000	1,400,000	1,500,000	120,000	130,000
ETHANE	ug/L	ND	ND	ND	ND	4.7 J	2.8 J	ND	ND
ETHYLENE	ug/L	37 J	ND	1.4 J	2.5 J	ND	ND	ND	ND
METHANE	ug/L	8,200	470	220	160	300	300	71	68
NITROGEN, NITRATE (AS N)	ug/L	ND	ND	100 J	ND	ND	ND	ND	ND
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	2,900	77,000	110,000	53,000	72,000	72,000	47,000	410,000
SULFIDE	ug/L	4,000	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	160,000	4,000	5,200	2,800	4,400	5,000	36,00	4,300

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Wet Chemistry

	Station:	MW-015S	MW-015S	MW-100	MW-101	MW-102	MW-500D	MW-500D	MW-500S
	Sample:	05CK29-26	05CK29-27	05CK29-15	05CK29-16	05CK29-18	05CK29-03	05CK29-04	05CK29-06
	Date:	4/29/2005	4/29/2005	4/27/2005	4/27/2005	4/28/2005	4/25/2005	4/25/2005	4/26/2005
Wet Chemistry									
ALKALINITY, TOTAL (AS CACO3)	ug/L	320,000	310,000	230,000	320,000	330,000	290,000	290,000	190,000
CHLORIDE (AS CL)	ug/L	17,000	17,000	14,000	28,000	50,000	240,000	450,000	30,000
ETHANE	ug/L	ND	ND	2.5 J	4.9 J	ND	ND	ND	ND
ETHYLENE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
METHANE	ug/L	63	63	820	390	1,200	30	28	41
NITROGEN, NITRATE (AS N)	ug/L	90 J	ND	91 J	ND	190	ND	97 J	460
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND	770
SULFATE (AS SO4)	ug/L	48,000	48,000	8,100	14,000	24,000	120,000	110,000	57,000
SULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	4,200	3,800	3,500	2,700	2,500 J	8,000	8,900	10,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-501D	MW-501S	MW-502D	MW-502S	MW-503D	MW-503D	MW-503S	MW-504D
	Sample:	05CK29-07	05CK29-08	05CK29-65	05CK29-64	05CK29-60	05CK29-63	05CK29-62	05CK29-48
	Date:	4/26/2005	4/26/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/4/2005
Wet Chemistry									
ALKALINITY, TOTAL (AS CACO3)	ug/L	350,000	280,000	390,000	440,000	360,000	340,000	470,000	440,000
CHLORIDE (AS CL)	ug/L	61,000	210,000	250,000	120,000	490,000	580,000	140,000	280,000
ETHANE	ug/L	ND	ND	13	310	21	21	250	4.5 J
ETHYLENE	ug/L	ND	ND	ND	14	260	260	290	140
METHANE	ug/L	280	5.9	64	3,100	1,200	1,200	4,100	130
NITROGEN, NITRATE (AS N)	ug/L	ND	170	ND	99 J	ND	93 J	100 J	ND
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	39,000	130,000	480,000	47,000	1,100,000	1,200,000	19,000	210,000
SULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	4,800	4,100	4,500	9,500	13,000	13,000	40,000	13,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-504S	MW-505D	MW-505S	MW-506D	MW-506D	MW-506S	MW-507D
	Sample:	05CK29-49	05CK29-53	05CK29-54	05CK29-50	05CK29-51	05CK29-52	05CK29-35
	Date:	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/4/2005	5/2/2005
Wet Chemistry								
ALKALINITY, TOTAL (AS CACO3)	ug/L	460,000	370,000	520,000	370,000	350,000	450,000	310,000
CHLORIDE (AS CL)	ug/L	110,000	140,000	180,000	240,000	240,000	140,000	75,000
ETHANE	ug/L	79	3.9 J	160	12	9.9	94	4.6 J
ETHYLENE	ug/L	51	120	ND	570	560	17	ND
METHANE	ug/L	85	450	3,400	420	340	1,100	350
NITROGEN, NITRATE (AS N)	ug/L	ND	92 J	ND	100 J	96 J	1,100	ND
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	59,000	ND	8,000	250,000	250,000	29,000	61,000
SULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	8,700	3,200	9,700	4,400	4,400	3,900	3,100

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-507S	MW-508D	MW-508S	MW-509D	MW-509S	MW-510D	MW-510S
	Sample:	05CK29-36	05CK29-12	05CK29-17	05CK29-25	05CK29-30	05CK29-55	05CK29-56
	Date:	5/2/2005	4/27/2005	4/27/2005	4/29/2005	4/29/2005	5/4/2005	5/4/2005
Wet Chemistry								
ALKALINITY, TOTAL (AS CACO3)	ug/L	210,000	230,000	220,000	340,000	320,000	380,000	330,000
CHLORIDE (AS CL)	ug/L	6,500	28,000	75,000	620,000	260,000	310,000	83,000
ETHANE	ug/L	ND	2.6 J	9.5	ND	ND	ND	3.6 J
ETHYLENE	ug/L	ND	ND	ND	ND	ND	ND	ND
METHANE	ug/L	320	30	61	47	9.1 J	150	840
NITROGEN, NITRATE (AS N)	ug/L	ND	91 J	ND	110 J	89 J	90 J	1,900
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	58,000	33,000	15,000	65,000	130,000	56,000	ND
SULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	2,700	4,700	1,500 J	2,900	2,500 J	3,400	4,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	MW-511D	MW-511S	MW-512D	MW-512S	MW-513D	MW-513S	MW-514D	MW-514S
	Sample:	05CK29-45	05CK29-46	05CK29-42	05CK29-39	05CK29-40	05CK29-41	05CK29-59	05CK29-61
	Date:	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/5/2005	5/5/2005
Wet Chemistry									
ALKALINITY, TOTAL (AS CACO3)	ug/L	400,000	450,000	490,000	340,000	360,000	270,000	460,000	370,000
CHLORIDE (AS CL)	ug/L	86,000	55,000	150,000	11,000	170,000	63,000	210,000	44,000
ETHANE	ug/L	5.8 J	2.6 J	ND	3.4 J	ND	ND	49	5.7 J
ETHYLENE	ug/L	ND	ND	110	ND	ND	ND	180	6.6 J
METHANE	ug/L	2,700	170	3,300	43	790	240	2,500	70
NITROGEN, NITRATE (AS N)	ug/L	ND	940	ND	230	89 J	ND	ND	840
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	11,000	140,000	3,000	49,000	3,900	69,000	61,000	67,000
SULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	4,400	2,100 J	16,000	2,600 J	3,800	2,500 J	5,600	4,800

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

		MW-515D	MW-515S	MW-516D	MW-516S	MW-517D	MW-517S	W-003	W-004
	Station:	MW-515D	MW-515S	MW-516D	MW-516S	MW-517D	MW-517S	W-003	W-004
	Sample:	05CK29-37	05CK29-38	05CK29-33	05CK29-31	05CK29-58	05CK29-57	05CK29-43	05CK29-29
	Date:	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/5/2005	5/4/2005	5/3/2005	4/29/2005
Wet Chemistry									
ALKALINITY, TOTAL (AS CACO3)	ug/L	1,200,000	270,000	2,100,000	360,000	380,000	320,000	340,000	300,000
CHLORIDE (AS CL)	ug/L	700,000	47,000	1,900,000	48,000	390,000	120,000	250,000	190,000
ETHANE	ug/L	ND	ND	ND	ND	ND	2.5 J	ND	1.4 J
ETHYLENE	ug/L	ND	ND	ND	ND	ND	ND	ND	11
METHANE	ug/L	670	48	6,400	7.5	88	380	66	150
NITROGEN, NITRATE (AS N)	ug/L	ND	90 J	ND	1,100	ND	92 J	150	89 J
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	140,000	51,000	760 J	200,000	97,000	52,000	95,000	100,000
SULFIDE	ug/L	1,600 J	ND	4,600	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	34,000	4,700	75,000	1,200 J	2,900	2,600 J	2,600 J	2,500 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Water Samples
Wet Chemistry

	Station:	W-005	W-006	W-007	W-009	W-010	W-011	W-012	W-013
	Sample:	05CK29-10	05CK29-09	05CK29-05	05CK29-11	05CK29-13	05CK29-01	05CK29-02	05CK29-14
	Date:	4/26/2005	4/26/2005	4/25/2005	4/26/2005	4/27/2005	4/25/2005	4/25/2005	4/27/2005
Wet Chemistry									
ALKALINITY, TOTAL (AS CACO3)	ug/L	320,000	250,000	320,000	270,000	340,000	370,000	230,000	280,000
CHLORIDE (AS CL)	ug/L	200,000	790,000	240,000	160,000	300,000	230,000	58,000	90,000
ETHANE	ug/L	ND	ND	50 J	6.1 J	ND	ND	0.63 J	3.7 J
ETHYLENE	ug/L	10	110	ND	18	ND	ND	1.6	ND
METHANE	ug/L	29	130	960	49	49	30	5	630
NITROGEN, NITRATE (AS N)	ug/L	ND	ND	ND	ND	88 J	ND	86 J	ND
NITROGEN, NITRITE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
SULFATE (AS SO4)	ug/L	48,000	70,000	78,000	300,000	360,000	99,000	110,000	12,000
SULFIDE	ug/L	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL ORGANIC CARBON	ug/L	4,000	3,400	4,400	3,500	4,800	3,800	4,500	2,400 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Concrete Cores
Metals

	Station:	CB-008	CB-011	CB-013	CB-014	CB-014	CB-015
	Sample:	05CK12-11	05CK12-13	05CK12-22	05CK12-15	05CK12-23	05CK12-14
	Interval:	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3
	Date:	1/18/2005	1/18/2005	1/19/2005	1/18/2005	1/19/2005	1/18/2005
Metals							
ALUMINUM (FUME OR DUST)	ug/Kg	5,140,000	6,820,000	6,000,000	7,970,000	7,250,000	8,990,000
ARSENIC	ug/Kg	1,900 J	3,300 J	3,300 J	4,200	3,100 J	10,400
BARIUM	ug/Kg	31,700	169,000	56,900	57,000	36,600	66,100
BERYLLIUM	ug/Kg	270	200 J	160 J	380	370 J	510
CADMIUM	ug/Kg	230 J	790	250 J	660	ND	1300
CALCIUM METAL	ug/Kg	165,000,000	151,000,000	148,000,000	186,000,000	155,000,000	175,000,000
CHROMIUM, TOTAL	ug/Kg	6,200	10,500	10,800	15,900	16,600	105,000
COBALT	ug/Kg	9,700	3,100	3,000	4,300	10,300	6,200
COPPER	ug/Kg	13,000	26,200	17,100	25,100	39,300	236,000
CYANIDE	ug/Kg	2,300	ND	ND	ND	ND	ND
IRON	ug/Kg	5,780,000	6,660,000	7,220,000	10,900,000	10,500,000	59,900,000
LEAD	ug/Kg	3,700 J	5,200	4,100 J	4,600	4,200 J	5,400
MAGNESIUM	ug/Kg	47,600,000	42,800,000	43,100,000	43,300,000	42,400,000	41,600,000
MANGANESE	ug/Kg	209,000	191,000	224,000	616,000	440,000	1,260,000
NICKEL	ug/Kg	3,200	9,300	4,300	7,900	11,300	39,800
POTASSIUM	ug/Kg	1,660,000	1,560,000	1,880,000	1,640,000	1,500,000	1,170,000
SILVER	ug/Kg	ND	ND	ND	ND	ND	1,900 J
SODIUM	ug/Kg	499,000 J	714,000	263,000 J	466,000 J	292,000 J	490,000 J
VANADIUM (FUME OR DUST)	ug/Kg	10,000	23,400	14,000	13,200	14,600	15,000
ZINC	ug/Kg	19,900	41,200	45,400	32,800	23,200	31,500

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Concrete Cores
PCBs

	Station:	CB-001	CB-001	CB-002	CB-003	CB-004	CB-005	CB-006	CB-007	CB-008
	Sample:	05CK12-17	05CK12-18	05CK12-06	05CK12-08	05CK12-09	05CK12-10	05CK12-19	05CK12-20	05CK12-11
	Interval:	0 - 0.3	0.3 - 0.6	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3
	Date:	1/19/2005	1/19/2005	1/18/2005	1/18/2005	1/18/2005	1/18/2005	1/19/2005	1/19/2005	1/18/2005
PCBs										
PCB-1248 (AROCHLOR 1248)	ug/Kg	54,000 J	520,000 J	22,000 J	35,000 J	11,000 J	22,000 J	640	6,500 J	1,000 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Concrete Cores
PCBs

	Station:	CB-009	CB-010	CB-010	CB-011	CB-012	CB-013	CB-014	CB-014
	Sample:	05CK12-12	05CK12-01	05CK12-21	05CK12-13	05CK12-02	05CK12-22	05CK12-15	05CK12-23
	Interval:	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3
	Date:	1/18/2005	1/17/2005	1/19/2005	1/18/2005	1/17/2005	1/19/2005	1/18/2005	1/19/2005
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/Kg	1,400,000 J	2,700	1,200 J	310 J	9,200 J	1,400 J	240,000 J	380,000 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	CB-015	CB-017	CB-018	CB-019	CB-020	CB-021	CB-021	CB-022
	Sample:	05CK12-14	05CK12-03	05CK12-24	05CK12-05	05CK12-04	05CK12-25	05CK12-26	05CK12-16
	Interval:	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0.4 - 0.7	0 - 0.3
	Date:	1/18/2005	1/17/2005	1/19/2005	1/18/2005	1/17/2005	1/19/2005	1/19/2005	1/18/2005
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/Kg	19,000 J	13,000	2,100,000 J	810	5,000	6,600 J	280,000 J	970,000 J

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Concrete Cores
SPLP Metals

	Station:	CB-008	CB-011	CB-013	CB-014	CB-014	CB-015
	Sample:	05CK12-11	05CK12-13	05CK12-22	05CK12-15	05CK12-23	05CK12-14
	Interval:	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3	0 - 0.3
	Date:	1/18/2005	1/18/2005	1/19/2005	1/18/2005	1/19/2005	1/18/2005
SPLP Metals							
ALUMINUM (FUME OR DUST)	ug/L	740 J	ND	ND	ND	ND	720 J
BARIUM	ug/L	94	780	72	210	160	270
CALCIUM METAL	ug/L	240,000	360,000	520,000	430,000	480,000	470,000
CHROMIUM, TOTAL	ug/L	ND	21	16	4.6 J	9.5 J	ND
COPPER	ug/L	20 J	32	43	38	44	42
IRON	ug/L	ND	ND	ND	ND	320 J	240 J
LEAD	ug/L	ND	ND	ND	ND	0.48 J	0.41 J
MAGNESIUM	ug/L	ND	ND	ND	ND	680 J	460 J
MANGANESE	ug/L	ND	ND	ND	ND	12 J	23
POTASSIUM	ug/L	20,000	25,000	33,000	22,000	ND	13,000
SODIUM	ug/L	8,900	16,000	4,800	14,000	ND	10,000

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-001	NPW-002	NPW-003	NPW-004	NPW-005	NPW-006	NPW-007	NPW-008
	Sample:	05CK08-01	05CK08-02	05CK08-03	05CK08-04	05CK08-05	05CK08-06	05CK08-07	05CK08-08
	Date:	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	100	63	64	120	160	28	100	84
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

		NPW-009	NPW-010	NPW-011	NPW-012	NPW-013	NPW-014	NPW-015	NPW-016
	Station:	NPW-009	NPW-010	NPW-011	NPW-012	NPW-013	NPW-014	NPW-015	NPW-016
	Sample:	05CK08-09	05CK08-10	05CK08-25	05CK08-26	05CK08-27	05CK08-28	05CK08-29	05CK08-30
	Date:	12/14/2004	12/14/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	60	350	15	70	98	120	27	540
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-017	NPW-018	NPW-019	NPW-020	NPW-021	NPW-022	NPW-023	NPW-024
	Sample:	05CK08-31	05CK08-32	05CK08-41	05CK08-49	05CK08-42	05CK08-43	05CK08-50	05CK08-51
	Date:	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	200	76	3.9	7.5	30	11	150	16
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-025	NPW-026	NPW-027	NPW-028	NPW-030	NPW-031	NPW-032	NPW-033
	Sample:	05CK08-52	05CK08-53	05CK08-54	05CK08-55	05CK08-57	05CK08-58	05CK08-59	05CK08-60
	Date:	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	91	110	430	220	87	65	46	210
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	NPW-034	NPW-035	NPW-036	NPW-037	NPW-038	NPW-039	NPW-039	NPW-040
	Sample:	05CK08-76	05CK08-77	05CK08-78	05CK08-79	05CK08-80	05CK08-81	05CK08-82	05CK08-83
	Date:	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	96	120	90	130	140	180	190	210
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-041	NPW-042	NPW-043	NPW-044	NPW-045	NPW-046	NPW-047	NPW-048
	Sample:	05CK08-84	05CK08-85	05CK08-86	05CK08-92	05CK08-93	05CK08-94	05CK08-95	05CK08-96
	Date:	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	230	150	100	91	70	40	90	600
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-062	NPW-063	NPW-064	NPW-065	NPW-066	NPW-066	NPW-067	NPW-068
	Sample:	05CK28-28	05CK28-29	05CK28-30	05CK28-31	05CK28-32	05CK28-33	05CK28-34	05CK28-35
	Date:	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	26	6.8	10 J	15	19 J	32	34	85
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-069	NPW-070	NPW-071	NPW-072	NPW-073	NPW-074	NPW-075	NPW-076
	Sample:	05CK28-36	05CK28-37	05CK28-38	05CK28-39	05CK28-40	05CK28-41	05CK28-42	05CK28-43
	Date:	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	77	67	1.4 J	17	4.9 J	8.5 J	14	1.3
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	NPW-077	NPW-078	NPW-078	NPW-079	NPW-080	PW-001	PW-003	PW-004
	Sample:	05CK28-44	05CK28-45	05CK28-46	05CK28-47	05CK28-48	05CK08-97	05CK08-99	05CK09-01
	Date:	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	12/16/2004	12/16/2004	12/16/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	16	0.71	2.3	1.9 J	1.1	0.46	0.91	2.4
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	PW-005	PW-005	PW-007	PW-008	PW-009	PW-014	PW-015	PW-015
	Sample:	05CK09-02	05CK09-03	05CK09-19	05CK09-04	05CK09-09	05CK09-13	05CK08-34	05CK28-49
	Date:	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/15/2004	4/7/2005
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	1.1	1.2	0.33	2.3	4.7	0.67	47	
PCB-1248 (AROCHLOR 1248)	ug/kg								190,000

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	PW-016	PW-017	PW-017	PW-018	PW-020	PW-020	PW-021	PW-022
	Sample:	05CK09-14	05CK09-15	05CK09-16	05CK09-17	05CK08-36	05CK28-50	05CK08-37	05CK08-38
	Date:	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/15/2004	4/7/2005	12/15/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	2.2	5.8	5.5	13	750		23	15
PCB-1248 (AROCHLOR 1248)	ug/kg						99,000		

	Station:	PW-023	PW-023	PW-023	PW-024	PW-025	PW-025	PW-026	PW-027
	Sample:	05CK08-61	05CK08-62	05CK28-51	05CK08-39	05CK09-05	05CK28-52	05CK28-53	05CK08-14
	Date:	12/15/2004	12/15/2004	4/7/2005	12/15/2004	12/16/2004	4/7/2005	4/7/2005	12/14/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	250	340		27	710			2.2
PCB-1248 (AROCHLOR 1248)	ug/kg			730,000			13,000	11,000	

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	PW-028	PW-029	PW-030	PW-031	PW-033	PW-034	PW-035	PW-036
	Sample:	05CK08-15	05CK08-16	05CK08-17	05CK08-18	05CK08-20	05CK08-21	05CK08-22	05CK08-23
	Date:	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004	12/14/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	4.6	1.7	4.6	42	1.9	9.4	32	12
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	PW-037	PW-038	PW-039	PW-040	PW-041	PW-041	PW-042	PW-042
	Sample:	05CK08-63	05CK08-64	05CK08-44	05CK08-45	05CK08-46	05CK28-54	05CK08-65	05CK08-66
	Date:	12/15/2004	12/15/2004	12/15/2004	12/15/2004	12/15/2004	4/7/2005	12/15/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	14	4.1	9.4	5.5	150		140	250
PCB-1248 (AROCHLOR 1248)	ug/kg						600,000		

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	PW-042	PW-043	PW-043	PW-044	PW-045	PW-046	PW-047	PW-048
	Sample:	05CK28-55	05CK08-67	05CK28-56	05CK08-68	05CK08-69	05CK08-70	05CK08-24	05CK08-71
	Date:	4/7/2005	12/15/2004	4/7/2005	12/15/2004	12/15/2004	12/15/2004	12/14/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$		98		33	0.97	18	19	13
PCB-1248 (AROCHLOR 1248)	ug/kg	190,000		92,000 J					

APPENDIX C
OMC Plant 2—Wipe Samples
PCB

	Station:	PW-049	PW-050	PW-051	PW-052	PW-053	PW-054	PW-055	PW-056
	Sample:	05CK09-18	05CK08-87	05CK08-88	05CK08-89	05CK08-90	05CK08-72	05CK08-73	05CK08-74
	Date:	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/16/2004	12/15/2004	12/15/2004	12/15/2004
PCBs									
PCB-1248 (AROCHLOR 1248)	ug/100cm^2	15	2.8	0.69	18	53	3.6	1.7	5.2
PCB-1248 (AROCHLOR 1248)	ug/kg								

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

	Station:	PW-057	PW-058	PW-059	PW-059	PW-059	PW-060	PW-061	PW-061
	Sample:	05CK08-91	05CK09-06	05CK08-75	05CK28-57	05CK28-58	05CK08-47	05CK08-48	05CK28-59
	Date:	12/16/2004	12/16/2004	12/15/2004	4/7/2005	4/7/2005	12/15/2004	12/15/2004	4/7/2005
PCBs									
PCB-1248 (AROCHLOR 1248)	$ug/100cm^2$	11	5.7	200			14	170	
PCB-1248 (AROCHLOR 1248)	ug/kg				64,000	110,000			810,000

APPENDIX C
OMC Plant 2—Air Samples
Volatile Organic Compounds

	Station:	AA-001	AA-002	AA-003	AA-004	AA-BKG	GS-001	GS-002	GS-003
	Sample:	05CK14-07	05CK14-08	05CK14-09	05CK14-10	05CK14-11	05CK14-02	05CK14-05	05CK14-01
	Interval:	N/A	N/A	N/A	N/A	N/A	2 - 2	2 - 2	1.3 - 1.3
	Date:	2/23/2005	2/23/2005	2/23/2005	2/23/2005	2/23/2005	2/23/2005	2/23/2005	2/23/2005
Volatile Organic Compounds									
1,1,1-TRICHLOROETHANE	ppbv	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE	ppbv	1.1	0.76	1.2	0.55	ND	3.8	4.5	11
2-HEXANONE	ppbv	ND	ND	ND	1.0	ND	ND	ND	ND
ACETONE	ppbv	11	6.8	8.9	ND	ND	34	31	ND
BENZENE	ppbv	6.6	6.8	6.5	0.52	0.23	4.3	4.6	8.8
CARBON DISULFIDE	ppbv	ND	ND	ND	ND	ND	0.82	ND	ND
CHLOROMETHANE	ppbv	ND	0.55	0.59	0.55	ND	0.61	0.60	ND
CIS-1,2-DICHLOROETHYLENE	ppbv	ND	ND	ND	ND	ND	0.49	0.50	ND
ETHYLBENZENE	ppbv	2.1	0.49	2.1	0.51	ND	1.7	1.8	2.1
O-XYLENE (1,2-DIMETHYLBENZENE)	ppbv	1.9	0.20	2.2	0.40	ND	1.9	2.1	2.1
TETRACHLOROETHYLENE(PCE)	ppbv	5.9	5.2	5.3	ND	ND	0.20	ND	ND
TOLUENE	ppbv	26	15	23	5.5	0.38	11	11	11
TRICHLOROETHYLENE	ppbv	ND	ND	ND	ND	ND	0.24	0.25	ND
VINYL CHLORIDE	ppbv	ND	ND	ND	ND	ND	ND	ND	ND
XYLENES, TOTAL	ppbv	6.6	0.89	7.1	1.8	ND	5.7	6.3	6.7

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

APPENDIX C
OMC Plant 2—Air Samples
Volatile Organic Compounds

	Station:	GS-004	GS-005
	Sample:	05CK14-03	05CK14-04
	Interval:	2 - 2	3 - 3
	Date:	2/23/2005	2/23/2005
Volatile Organic Compounds			
1,1,1-TRICHLOROETHANE	ppbv	0.20	0.67
2-BUTANONE	ppbv	2.1	5.7
2-HEXANONE	ppbv	ND	ND
ACETONE	ppbv	21	49
BENZENE	ppbv	5.7	5.1
CARBON DISULFIDE	ppbv	2.1	0.81
CHLOROMETHANE	ppbv	1.1	0.53
CIS-1,2-DICHLOROETHYLENE	ppbv	ND	ND
ETHYLBENZENE	ppbv	1.6	2.1
O-XYLENE (1,2-DIMETHYLBENZENE)	ppbv	1.8	2.4
TETRACHLOROETHYLENE(PCE)	ppbv	0.26	0.51
TOLUENE	ppbv	11	11
TRICHLOROETHYLENE	ppbv	0.21	0.28
VINYL CHLORIDE	ppbv	0.25	ND
XYLENES, TOTAL	ppbv	5.5	7.1

Qualifier Key: "J" - Estimated Result; "R" - Rejected; No Qualifier - Analyte Found; "ND" - Not Detected

CONESTOGA-ROVERS
& ASSOCIATES

651 Colby Drive, Waterloo, Ontario, Canada N2V 1C2
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September 8, 2005

Reference No. 19023-84

Mr. Kevin Adler
United States Environmental Protection Agency
Region V, 77 West Jackson Boulevard
Chicago, IL 60604-3590

Dear Mr. Adler:

Re: Waukegan Manufactured Gas and Coke Plant Site
100 Seahorse Drive, TRIAX Building
Waukegan Concerns

We have completed additional PCB characterization sample collection and analysis inside the TRIAX Building as described in our June 20, 2005 letter to you. Twenty-one wipe samples were collected on August 11, 2005. A summary of results is presented on Table 1, attached. Laboratory Reports are presented in Attachment A. Two samples were broken in transit and were not analyzed.

Results

The results indicate that horizontal surfaces, roof truss members, flat roof of internal buildouts and the main floor, have variable concentrations of PCBs ranging up to a high of 19 $\mu g/100\ cm^2$. These results are consistent with the April 6, 2005 wipe sample results obtained by CH_2M Hill.

PCBs were not detected on any vertical surface.

Proposed Action

As PCBs are consistently present above 10 $\mu g/cm^2$ the following cleanup task is proposed. This task will be part of the water treatment plant contract and will be completed immediately prior to beginning construction of the water treatment plant.

1. Hand wash roof truss members.
2. Hand wash roof and interior of interior buildouts along the west and south walls.
3. Wash floor with scrubbing unit that vacuums wash water off the floor.
4. Seal the floor with one coat of epoxy floor sealer.
5. As soon as epoxy floor sealer is dry build permanent wall preventing direct access to balance of OMC Plant 2.

Should you have any questions on the above, please do not hesitate to contact us.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

A. Van Norman

Alan Van Norman

AVN/ja/68
Encl.

c.c.: Erin Rednour
Jewelle Keiser
Steven Matuszak
Dr. Campbell
Jim Langseth
Julie Sullivan
Larry Milner
Gary Deigan
John Moore

ATTACHMENT A

TO LETTER OF SEPTEMBER 8, 2005
LABORATORY RESULTS

TABLE 1

SUMMARY OF INVESTIGATIVE WIPE SAMPLE ANALYTICAL DATA
TRIAX BUILDING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

Sample ID	*Sample Location*	*Sample Date*	*Cleanup Criterium*[1] *(µg/100 cm²)*	*Total PCBs* *(µg/100 cm²)*
WS-081105-PP-001	North Wall - floor/wall interface	08/11/05	10	5.6
WS-081105-PP-002	North Wall at 5 feet	08/11/05	10	ND (4.0)
WS-081105-PP-003	North Wall at 15 feet	08/11/05	10	ND (4.0)
WS-081105-PP-004	North Wall at 30 feet	08/11/05	10	ND (4.0)
WS-081105-PP-005	North Wall - below lower chord of roof truss	08/11/05	10	ND (4.0)
WS-081105-PP-006	North Wall - roof truss	08/11/05	10	Not Analyzed
WS-081105-PP-007	South Wall - floor/wall interface	08/11/05	10	ND (4.0)
WS-081105-PP-008	South Wall at 5 feet	08/11/05	10	ND (4.0)
WS-081105-PP-009	South Wall at 15 feet	08/11/05	10	Not Analyzed
WS-081105-PP-010	South Wall at 30 feet	08/11/05	10	ND (4.0)
WS-081105-PP-011	South Wall - below lower chord of roof truss	08/11/05	10	ND (4.0)
WS-081105-PP-012	South Wall - roof truss	08/11/05	10	**16**
WS-081105-PP-013	Build Out South Wall - roof	08/11/05	10	ND (4.0)
WS-081105-PP-014	Build Out South Wall - roof	08/11/05	10	ND (4.0)
WS-081105-PP-015	Build Out South Wall - interior	08/11/05	10	4.8
WS-081105-PP-016	Build Out West Wall - roof	08/11/05	10	**15**
WS-081105-PP-017	Build Out West Wall - roof	08/11/05	10	**15**
WS-081105-PP-018	Build Out West Wall - interior	08/11/05	10	ND (4.0)
WS-081105-PP-019	Floor - in front of east overhead door	08/11/05	10	ND (4.0)
WS-081105-PP-020	Floor - in front of middle overhead door	08/11/05	10	ND (4.0)
WS-081105-PP-021	Floor - in front of overhead door leading north into plant	08/11/05	10	**19**

Notes:

[1]Based on guidance provided in 40 CFR Part 761, Subpart G - PCB Spill Cleanup Policy - high contact solid surface cleanup requirements.
[2]ND - Not detected at quantitation limit stated in parentheses.

CRA 19023Adler-68-T1

SEVERN TRENT STL

STL North Canton
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ANALYTICAL REPORT

PROJECT NO. 019023-84

WAUKEGAN MGP COKE SITE

Lot #: A5H120256

Dave Hendren

Conestoga-Rovers & Associates
8615 W. Bryn Mawr
Chicago, IL 60631

SEVERN TRENT LABORATORIES, INC.

Amy L. McCormick
Project Manager

August 23, 2005

CASE NARRATIVE

A5H120256

The following report contains the analytical results for nineteen wipe samples submitted to STL North Canton by Conestoga-Rovers & Associates, Inc. from the Waukegan MGP Coke Site, project number 019023-84. The samples were received August 12, 2005, according to documented sample acceptance procedures.

Samples WS-081105-PP-006 and WS-081105-PP-009, listed on chain-of-custody record 13297, were received broken and could not be salvaged.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Dave Hendren on August 23, 2005. A summary of QC data for these analyses is included at the back of the report.

STL North Canton attests to the validity of the laboratory data generated by STL facilities reported herein. All analyses performed by STL facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. STL's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions, please call the Project Manager, Amy L. McCormick, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT." The total number of pages in this report is 35.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 1.9°C.

POLYCHLORINATED BIPHENYLS-8082

For sample(s) WS-081105-PP-016 and WS-081105-PP-017 the recovery for one surrogate compound is outside acceptance criteria. Since the method criterion is that one of two surrogate compounds must meet acceptance criteria, no corrective action was required.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*

QUALITY CONTROL ELEMENTS OF SW-846 METHODS
(Continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, and PAH methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225), Illinois (#200004), Kansas (#E10336), Massachusetts (#M-OH048), Maryland (#272), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), North Carolina (#39702), Ohio (#6090), OhioVAP (#CL0024), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003), Tennessee (#02903), Utah (#QUAN9), Virginia (#00011), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

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EXECUTIVE SUMMARY - Detection Highlights

A5H120256

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
WS-081105-PP-001 08/11/05 09:00 001				
Aroclor 1254	5.6	4.0	ug	SW846 8082
WS-081105-PP-012 08/11/05 09:50 010				
Aroclor 1254	16	4.0	ug	SW846 8082
WS-081105-PP-015 08/11/05 10:15 013				
Aroclor 1254	4.8	4.0	ug	SW846 8082
WS-081105-PP-016 08/11/05 10:21 014				
Aroclor 1254	15	4.0	ug	SW846 8082
WS-081105-PP-017 08/11/05 10:24 015				
Aroclor 1254	15	4.0	ug	SW846 8082
WS-081105-PP-021 08/11/05 10:49 019				
Aroclor 1254	19	4.0	ug	SW846 8082

ANALYTICAL METHODS SUMMARY

A5H120256

PARAMETER	ANALYTICAL METHOD
PCBs by SW-846 8082	SW846 8082

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A5H120256

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
HHFWC	001	WS-081105-PP-001	08/11/05	09:00
HHFWG	002	WS-081105-PP-002	08/11/05	09:03
HHFWJ	003	WS-081105-PP-003	08/11/05	09:09
HHFWK	004	WS-081105-PP-004	08/11/05	09:13
HHFWL	005	WS-081105-PP-005	08/11/05	09:20
HHFWM	006	WS-081105-PP-007	08/11/05	09:32
HHFWN	007	WS-081105-PP-008	08/11/05	09:35
HHFWQ	008	WS-081105-PP-010	08/11/05	09:43
HHFXF	009	WS-081105-PP-011	08/11/05	09:46
HHFXG	010	WS-081105-PP-012	08/11/05	09:50
HHFXJ	011	WS-081105-PP-013	08/11/05	10:08
HHFXK	012	WS-081105-PP-014	08/11/05	10:11
HHFXM	013	WS-081105-PP-015	08/11/05	10:15
HHFXN	014	WS-081105-PP-016	08/11/05	10:21
HHFXR	015	WS-081105-PP-017	08/11/05	10:24
HHFXT	016	WS-081105-PP-018	08/11/05	10:26
HHFXW	017	WS-081105-PP-019	08/11/05	10:45
HHFX0	018	WS-081105-PP-020	08/11/05	10:47
HHFX2	019	WS-081105-PP-021	08/11/05	10:49

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-001

GC Semivolatiles

Lot-Sample #...: A5H120256-001 **Work Order #...:** HHFWC1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 09:00 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	**5.6**	**4.0**	**ug**
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	88	(52 - 171)
Decachlorobiphenyl	92	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-002

GC Semivolatiles

Lot-Sample #...: A5H120256-002 **Work Order #...:** HHFWG1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 09:03 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	87	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-003

GC Semivolatiles

Lot-Sample #...:	A5H120256-003	**Work Order #...:**	HHFWJ1AA	**Matrix.........:**	SW
Date Sampled...:	08/11/05 09:09	**Date Received..:**	08/12/05		
Prep Date......:	08/14/05	**Analysis Date..:**	08/16/05		
Prep Batch #...:	5226038				
Dilution Factor:	1	**Method.........:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	90	(52 - 171)
Decachlorobiphenyl	93	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-004

GC Semivolatiles

Lot-Sample #...: A5H120256-004 **Work Order #...:** HHFWK1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 09:13 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(52 - 171)
Decachlorobiphenyl	89	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-005

GC Semivolatiles

Lot-Sample #...: A5H120256-005 **Work Order #...:** HHFWL1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 09:20 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	93	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-007

GC Semivolatiles

Lot-Sample #...: A5H120256-006 **Work Order #...:** HHFWM1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 09:32 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	93	(52 - 171)
Decachlorobiphenyl	96	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-008

GC Semivolatiles

Lot-Sample #...: A5H120256-007	**Work Order #...:** HHFWN1AA	**Matrix.........:** SW	
Date Sampled...: 08/11/05 09:35	**Date Received..:** 08/12/05		
Prep Date......: 08/14/05	**Analysis Date..:** 08/16/05		
Prep Batch #...: 5226038			
Dilution Factor: 1	**Method.........:** SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	88	(52 - 171)
Decachlorobiphenyl	96	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-010

GC Semivolatiles

Lot-Sample #...: A5H120256-008	**Work Order #...:** HHFWQ1AA		**Matrix.........:** SW
Date Sampled...: 08/11/05 09:43	**Date Received..:** 08/12/05		
Prep Date......: 08/14/05	**Analysis Date..:** 08/16/05		
Prep Batch #...: 5226038			
Dilution Factor: 1	**Method.........:** SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(52 - 171)
Decachlorobiphenyl	88	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-011

GC Semivolatiles

Lot-Sample #...:	A5H120256-009	**Work Order #...:**	HHFXF1AA	**Matrix.........:**	SW
Date Sampled...:	08/11/05 09:46	**Date Received..:**	08/12/05		
Prep Date......:	08/14/05	**Analysis Date..:**	08/16/05		
Prep Batch #...:	5226038				
Dilution Factor:	1	**Method.........:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	88	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-012

GC Semivolatiles

Lot-Sample #...:	A5H120256-010	**Work Order #...:**	HHFXG1AA	**Matrix.........:**	SW
Date Sampled...:	08/11/05 09:50	**Date Received..:**	08/12/05		
Prep Date......:	08/14/05	**Analysis Date..:**	08/16/05		
Prep Batch #...:	5226038				
Dilution Factor:	1	**Method.........:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	**16**	**4.0**	**ug**
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(52 - 171)
Decachlorobiphenyl	83	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-013

GC Semivolatiles

Lot-Sample #...: A5H120256-011	**Work Order #...:** HHFXJ1AA		**Matrix.........:** SW
Date Sampled...: 08/11/05 10:08	**Date Received..:** 08/12/05		
Prep Date......: 08/14/05	**Analysis Date..:** 08/16/05		
Prep Batch #...: 5226038			
Dilution Factor: 1	**Method.........:** SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	88	(52 - 171)
Decachlorobiphenyl	101	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-014

GC Semivolatiles

Lot-Sample #...: A5H120256-012 **Work Order #...:** HHFXK1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 10:11 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	89	(52 - 171)
Decachlorobiphenyl	91	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-015

GC Semivolatiles

Lot-Sample #...: A5H120256-013 **Work Order #...:** HHFXM1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 10:15 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	**4.8**	**4.0**	**ug**
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	90	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-016

GC Semivolatiles

Lot-Sample #...:	A5H120256-014	**Work Order #...:**	HHFXN1AA	**Matrix.........:**	SW
Date Sampled...:	08/11/05 10:21	**Date Received..:**	08/12/05		
Prep Date......:	08/14/05	**Analysis Date..:**	08/16/05		
Prep Batch #...:	5226038				
Dilution Factor:	1	**Method.........:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	**15**	**4.0**	**ug**
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	246 *	(39 - 187)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-017

GC Semivolatiles

Lot-Sample #...: A5H120256-015	**Work Order #...:** HHFXR1AA	**Matrix.........:** SW
Date Sampled...: 08/11/05 10:24	**Date Received..:** 08/12/05	
Prep Date......: 08/14/05	**Analysis Date..:** 08/16/05	
Prep Batch #...: 5226038		
Dilution Factor: 1	**Method.........:** SW846 8082	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	**15**	**4.0**	**ug**
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	228 *	(39 - 187)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-018

GC Semivolatiles

Lot-Sample #...: A5H120256-016 **Work Order #...:** HHFXT1AA **Matrix.........:** SW
Date Sampled...: 08/11/05 10:26 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	107	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-019

GC Semivolatiles

Lot-Sample #...:	A5H120256-017	**Work Order #...:**	HHFXW1AA	**Matrix.........:**	SW
Date Sampled...:	08/11/05 10:45	**Date Received..:**	08/12/05		
Prep Date......:	08/14/05	**Analysis Date..:**	08/16/05		
Prep Batch #...:	5226038				
Dilution Factor:	1	**Method.........:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	89	(52 - 171)
Decachlorobiphenyl	98	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-020

GC Semivolatiles

Lot-Sample #...: A5H120256-018 **Work Order #...:** HHFX01AA **Matrix.........:** SW
Date Sampled...: 08/11/05 10:47 **Date Received..:** 08/12/05
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1 **Method.........:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	ND	4.0	ug
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(52 - 171)
Decachlorobiphenyl	88	(39 - 187)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: WS-081105-PP-021

GC Semivolatiles

Lot-Sample #...:	A5H120256-019	**Work Order #...:**	HHFX21AA	**Matrix.........:**	SW
Date Sampled...:	08/11/05 10:49	**Date Received..:**	08/12/05		
Prep Date......:	08/14/05	**Analysis Date..:**	08/16/05		
Prep Batch #...:	5226038				
Dilution Factor:	1	**Method.........:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	4.0	ug
Aroclor 1221	ND	4.0	ug
Aroclor 1232	ND	4.0	ug
Aroclor 1242	ND	4.0	ug
Aroclor 1248	ND	4.0	ug
Aroclor 1254	**19**	**4.0**	**ug**
Aroclor 1260	ND	4.0	ug

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	86	(52 - 171)
Decachlorobiphenyl	118	(39 - 187)

SEVERN TRENT STL

QUALITY CONTROL SECTION

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A5H120256 **Work Order #...:** HHH051AA **Matrix.........:** WIPE
MB Lot-Sample #: A5H140000-038
Prep Date......: 08/14/05
Analysis Date..: 08/16/05 **Prep Batch #...:** 5226038
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	4.0	ug	SW846 8082
Aroclor 1221	ND	4.0	ug	SW846 8082
Aroclor 1232	ND	4.0	ug	SW846 8082
Aroclor 1242	ND	4.0	ug	SW846 8082
Aroclor 1248	ND	4.0	ug	SW846 8082
Aroclor 1254	ND	4.0	ug	SW846 8082
Aroclor 1260	ND	4.0	ug	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	103	(52 - 171)
Decachlorobiphenyl	119	(39 - 187)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A5H120256 **Work Order #...:** HHH051AC-LCS **Matrix.........:** WIPE
LCS Lot-Sample#: A5H140000-038 HHH051AD-LCSD
Prep Date......: 08/14/05 **Analysis Date..:** 08/16/05
Prep Batch #...: 5226038
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**105**	**(79 - 141)**			**SW846 8082**
	111	**(79 - 141)**	**5.6**	**(0-30)**	**SW846 8082**
Aroclor 1260	**107**	**(71 - 136)**			**SW846 8082**
	108	**(71 - 136)**	**1.4**	**(0-30)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	100	(52 - 171)
	103	(52 - 171)
Decachlorobiphenyl	110	(39 - 187)
	114	(39 - 187)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

CONESTOGA-ROVERS & ASSOCIATES
8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

CHAIN-OF-CUSTODY RECORD

SHIPPED TO (Laboratory Name): STL

REFERENCE NUMBER: 19023-84

PROJECT NAME: Waukegan MGP Coke Site

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: Pritesh Pathak

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	PARAMETERS: Total PCBs	REMARKS
	8/11/05	900	WS-081105-PP-001	WIPE	1	X	
	8/11/05	903	WS-081105-PP-002		1	X	
	8/11/05	909	WS-081105-PP-003		1	X	
	8/11/05	913	WS-081105-PP-004		1	X	
	8/11/05	920	WS-081105-PP-005		1	X	
	8/11/05	923	WS-081105-PP-006		1	X	
	8/11/05	932	WS-081105-PP-007		1	X	
	8/11/05	935	WS-081105-PP-008		1	X	STAT
	8/11/05	940	WS-081105-PP-009		1	X	
	8/11/05	943	WS-081105-PP-010		1	X	
	8/11/05	946	WS-081105-PP-011		1	X	
	8/11/05	950	WS-081105-PP-012		1	X	
	8/11/05	1008	WS-081105-PP-013		1	X	
	8/11/05	1011	WS-081105-PP-014		1	X	
	8/11/05	1015	WS-081105-PP-015		1	X	
			TOTAL NUMBER OF CONTAINERS		15		

RELINQUISHED BY: ① [signature]	DATE: 8-11-05 TIME: 1200	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: FEDEX AIR BILL No. 8513 8380 9669

White -Fully Executed Copy Yellow -Receiving Laboratory Copy Pink -Shipper Copy Goldenrod -Sampler Copy	SAMPLE TEAM: P. PATHAK	RECEIVED FOR LABORATORY BY: [signature] DATE: 8/12/05 TIME: 945

13297

1001-00(SOURCE)GN-CO004

CONESTOGA-ROVERS & ASSOCIATES
8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

CHAIN-OF-CUSTODY RECORD

SHIPPED TO (Laboratory Name): STL North Canton

REFERENCE NUMBER: 19023-84

PROJECT NAME: Waukegan MGP Coke Site

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: Pritesh Pathak

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	PARAMETERS: Total PCBs	REMARKS
	8/11/05	10:21	WS-081105-PP-016	WIPE	1	X	
	8/11/05	10:24	WS-081105-PP-017	↓	1	X	
	8/11/05	10:26	WS-081105-PP-018		1	X	
	8/11/05	10:45	WS-081105-PP-019		1	X	
	8/11/05	10:47	WS-081105-PP-020		1	X	
	8/11/05	10:49	WS-081105-PP-021		1	X	
							STAT
			TOTAL NUMBER OF CONTAINERS		6		

RELINQUISHED BY: ① [signature]	DATE: 8/11/05 TIME: 12:00	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: FEDEX AIR BILL No. 8513 8380 9669

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM: P. PATHAK

RECEIVED FOR LABORATORY BY: [signature] 13304
DATE: 8/12/05 TIME: 945

1001-00(SOURCE)GN-CO004

STL Cooler Receipt Form/Narrative Lot Number: A5H120256
North Canton Facility

Client: CRA Project: Waukegan Coke Quote#:
Cooler Received on: 8/12/05 Opened on: 8/12/05 by: [signature] (Signature)

Fedx ☑ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ Other:
STL Cooler No#_______ Foam Box ☐ Client Cooler ☐ Other NO #

1. Were custody seals on the outside of the cooler? Yes ☐ No ☑ Intact? Yes ☐ No ☐ NA ☑
   If YES, Quantity_______
   Were the custody seals signed and dated? Yes ☐ No ☐ NA ☑
2. Shipper's packing slip attached to this form? Yes ☑ No ☐ NA ☐
3. Did custody papers accompany the samples? Yes ☑ No ☐ Relinquished by client? Yes ☑ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☑ No ☐
5. Packing material used: Bubble Wrap ☑ Foam ☐ None ☐ Other :_______
6. Cooler temperature upon receipt 1.9 °C (see back of form for multiple coolers/temp)
   METHOD: Temp Vial ☐ Coolant & Sample ☐ Against Bottles ☐ IR ☑ ICE/$H_2$0 Slurry ☐
   COOLANT: Wet Ice ☑ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
7. Did all bottles arrive in good condition (Unbroken)? Yes ☐ No ☑
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☑ No ☐
9. Were samples at the correct pH? (record below/on back) Yes ☐ No ☐ NA ☑
10. Were correct bottles used for the tests indicated? Yes ☑ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☑
12. Sufficient quantity received to perform indicated analyses? Yes ☑ No ☐

Contacted PM alm Date: 8/12/05 by: ams via Voice Mail ☑ Verbal ☐ Other ☐
Concerning: Breakage

√		

1. CHAIN OF CUSTODY

The following discrepancies occurred:
Ø

2. SAMPLE CONDITION

Sample(s)_______ were received after the recommended holding time had expired.
Sample(s) 006 + 009 - 18250 were received in a broken container. - VOA Remains

3. SAMPLE PRESERVATION 013 - Lid cracked - Replaced in ROC.

Sample(s) _______ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot # 051105-HNO3; Sulfuric Acid Lot # 102804-H2SO4; Sodium Hydroxide Lot # -041305 -NaOH; Hydrochloric Acid Lot # 100504-HCl; Sodium Hydroxide and Zinc Acetate Lot # 071604-CH3COO2ZN/NaOH*

Sample(s)_______ were received with bubble > 6 mm in diameter (cc: PM)

4. Other (see below or back)

Client ID	pH	Date	Initials

STL Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp	Method	Coolant

Discrepancies Cont.

END OF REPORT